3 1761 04628379 2

30

GENERAL CATALOG OF

POWER PRESSES *and* OTHER MACHINERY DIES *and* SPECIAL TOOLS

DESIGNED AND BUILT BY

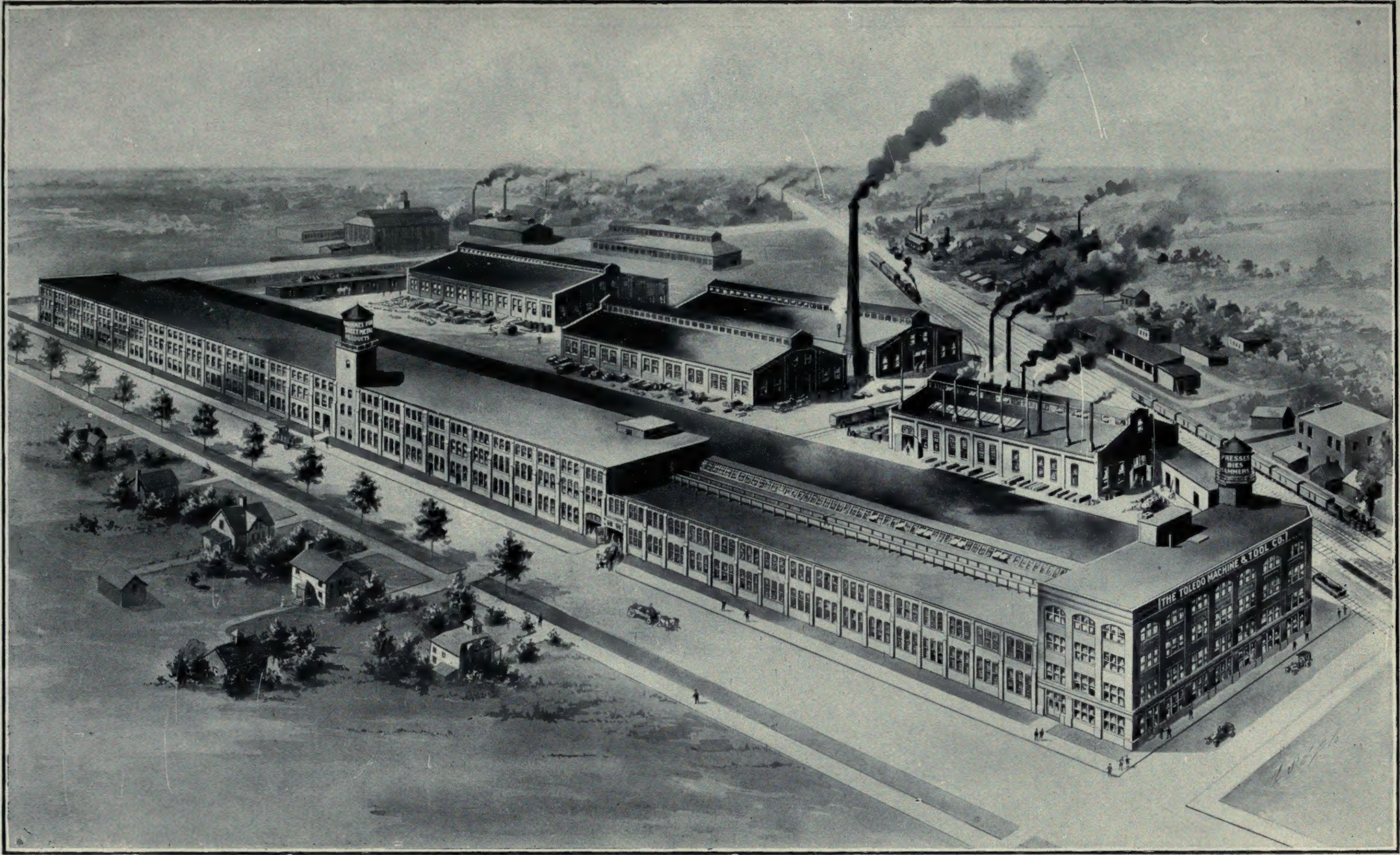
THE TOLEDO MACHINE
AND TOOL COMPANY
TOLEDO, OHIO, U. S. A.

ESTABLISHED 1888

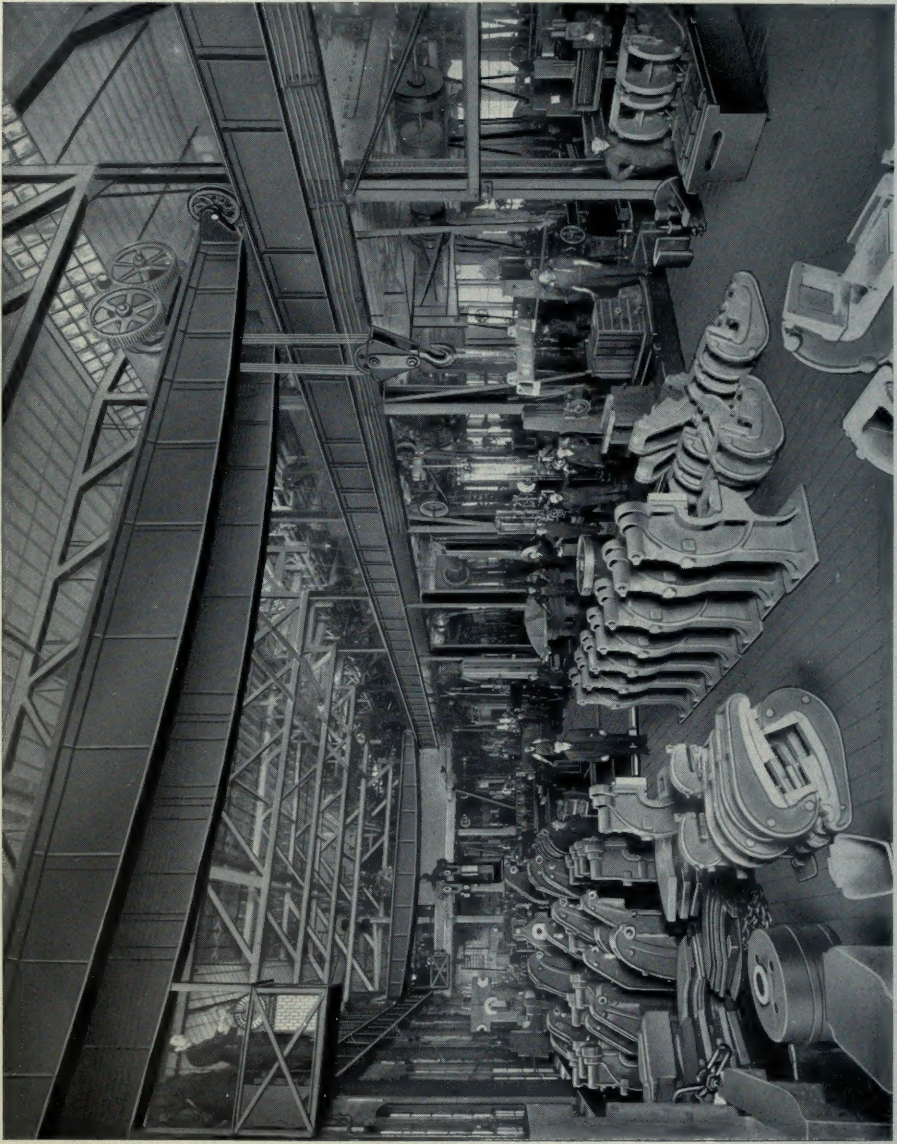
CATALOG No. 10
1912

COPYRIGHT 1909-1912
BY
THE TOLEDO MACHINE & TOOL COMPANY

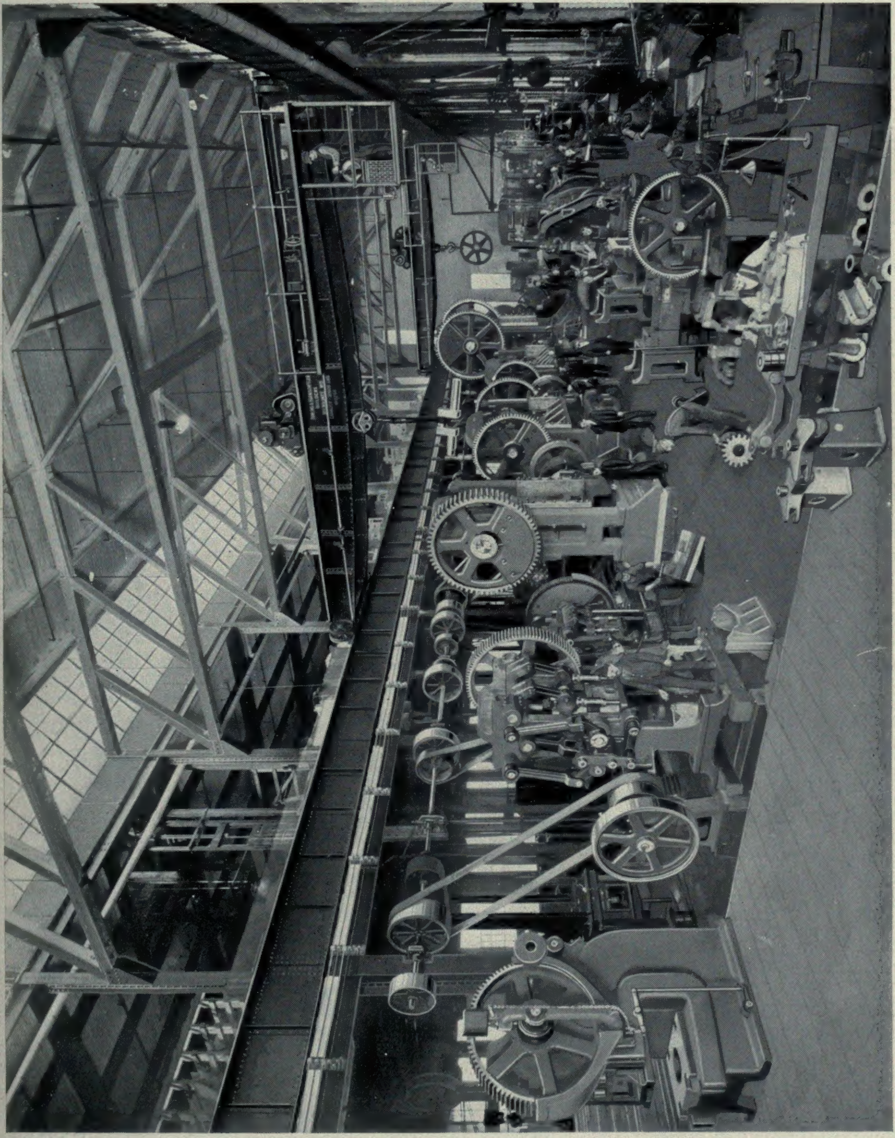
LIBRARY
NOV 2 - 1993
UNIVERSITY OF TORONTO


MACHINES FOR SHEET METAL PRODUCTS
THE TOLEDO MACHINE & TOOL CO.
PRESSES DIES HAMMERS

OFFICE AND WORKS OF THE TOLEDO MACHINE & TOOL COMPANY



INTERIOR VIEW, SOUTH END OF HEAVY MACHINERY FLOOR



INTERIOR VIEW, NORTH END, ERECTING FLOOR FOR HEAVY MACHINERY

GENERAL CATALOGUE No. 10

Greeting

IN submitting this, our Catalogue No. 10, comprising the nine sections thereof, we invite particular attention to the large line of machinery we build and offer. Our experience and phenomenal growth of over a quarter century as practical designers and builders, confined exclusively to this class of machinery, enables us to supply every possible need of manufacturers of **SHEET METAL, BAR IRON and DROP FORGED PRODUCTS**; our machines and tools being of the most advanced design, including the highest grade of workmanship and material.

Many new styles and sizes of machines with new and important improvements have been added to the constantly increasing output of this completely equipped plant, so that our makes continue in completeness and adaptability to a wide range of requirements. Besides, there is scarcely anything in the way of machinery for working **SHEET** and **BAR METAL PRODUCTS** and for all other special purposes in kindred lines which we have not built; and there is no part of the country where "TOLEDO" machines are not in use.

Realizing the economical problems which confront manufacturers, and the increasing demand for machinery for maximum production at minimum cost, we are constantly designing and building machines with automatic devices and improvements for increased rapidity and economy and for the specific purpose of bringing increased profits to users of our machines.

In case you need special machines for special work not shown in this catalogue, let us know **YOUR REQUIREMENTS,** as a large part of our work consists in designing and building special machines for special needs. This feature of our work has been so appreciated by the trade that it has resulted in a phenomenal growth of our business, until we now have the largest, most modernly equipped Machine and Tool plant in the United States engaged exclusively in this line of work.

With our unexcelled facilities in every way we are able to make the quickest deliveries of Power Presses, Hammers, Shears, Dies, Special Machines and Forgings. In fact our entire time and energy is devoted exclusively to the industry of making machinery for manufacturers of Sheet Metal Products, while our patrons' needs and interests are ever given our prompt and considerate attention.

While it is impracticable to illustrate in this Catalogue all of the special as well as machines of standard dimensions we are building, those given will at least serve to give an idea of the range of work covered, as well as to illustrate one or two of each of the many styles we built. Every machine we build is not only thoroughly tested in our factory before shipment, but is backed by our guarantee to perform successfully the work for which it is designed and intended.

The international reputation of "Toledo" machines represents not only the standard of demand for their excellence, but assures customers the highest mark of satisfaction in their dealings with us — and while we do not claim to put out the **CHEAPEST** in machines and tools, we do aim and claim to build and supply the **BEST** that will give the longest possible service, cost the least for up-keep and save money on the cost of manufactured products. Consistent then with quality and service, we aim to have our prices as low as possible.

We wish to thank our customers for their patronage in the past, for their courtesies and confidence bestowed upon us, and assure them that we will do our utmost in the future to merit its continuance, and bespeak further inquiries from all interested, which will have our prompt and careful attention.

Our Sectional Catalogue includes nine series as follows:

(Mailed on Request)

Series A—The "Toledo" Open Back Power Presses.

Series B—The "Toledo" Power Presses and other Machinery for the Manufacture of Automobiles, Steel Cars, etc.

Series C—The "Toledo" Straight Sided Single and Double Crank Power Presses.

Series D—The "Toledo" Power Punching and Heavy Cutting Presses.

Series E—The "Toledo" Toggle and Cam Actuated, Cutting, Drawing and Deep Stamping Power Presses.

Series F—The "Toledo" Power Drop Hammers, Forging and Trimming Presses.

Series G—The "Toledo" Power Squaring, Gap and Circular Shears.

Series H—The "Toledo" Power Presses and other Machinery for the Manufacture of Pieced Tin and Enameled Ware.

Series I—The "Toledo" Power Presses and other Machinery for the Manufacture of Electrical Apparatus, Steel Stoves and Ranges, etc.

NOTE—For convenience in classifying and grouping the several styles of Presses, and to enable us to add other sizes, we have found it necessary to change the numbers of many presses and, for this reason, where a change has been made, our dimension sheets show the old number in small type directly under the new number, thus enabling our customers to select and make comparisons when ordering from dimension sheets or catalogue.

Yours respectfully,

The Toledo Machine & Tool Co.

Toledo, Ohio, U. S. A.

INQUIRIES AND NOTES OF IMPORTANCE

WHEN making inquiries, please send full particulars as to the class and size of work to be done.

Before buying machines and tools for the manufacture of any product that is practical to make from sheet metal, bar iron or drop forging, we cordially ask you to send us your inquiries. Put it right square up to us to make good with plans and specifications of machinery, with estimates that will interest you. The unique position we occupy as experienced and successful engineers, designers and builders particularly fits us for the effective and economical production and supply of any special equipment a manufacturer may require.

If you are interested in starting a new plant for the manufacturing of standard goods in the sheet metal line, be particular in sending us full details as to exact character and size of goods to be made and the output desired per day. This will enable us to submit exact estimates as to minimum cost with maximum of your production.

If you intend to use machines for making any new article, send us either a perfect sample, model or exact drawing, showing clearly all the shapes, dimensions and joints, such as may be required to have in the finished article.

In making inquiries for Punching Presses state the kind and thickness of material, the size and number of holes to be punched, their relative position to the edge of the sheet or strip (and their relative position to each other, if more than one hole) ; for blanking and forming, state the size and shape, also the kind and thickness of metal, and furnish us with any other information that may enable us to more accurately determine the size and style of machine best suited for the work. For Power Shears state the thickness and kind of material and the length of cut.

This Catalogue supersedes previous editions.

It shows *many new machines.*

Quotations for Special Machines, Tools, Dies, etc., are subject to alterations without notice if not accepted within sixty days from date of quotation.

The illustrations are reproductions from photographs and are accurate representations of our various machines and tools, but are not binding in detail; where a machine is made in more than one size, it occasionally happens that the different sizes may vary in form and detail.

When ordering machines from this catalogue please give reference to "1912 Catalogue, No. 10," also specifying *number* of page and *size* of machine. If this is done it will enable you to *preserve* this book, as it is intended, and if you are not interested now you may be later on, so please place it on *file for ready reference.*

Yours respectfully,

THE TOLEDO MACHINE & TOOL CO.

TOLEDO, OHIO, U. S. A.

We are designers and builders of

Blanking and Forming Presses
Screw Presses
Horning Presses
Coining Presses
Wiring Presses
Drop Presses
Riveting Presses
Forging Presses
Trimming Presses
Armature Disc Notching Presses
Foot Presses
Toggle Drawing Presses
Cam Drawing Presses
Reducing Presses
Horizontal Bending Machines
Drop Hammers
Wire Ring Machines
Spinning Lathes
Double Seamers
Edging Machines
Beading and Flanging Machines
Rolls
Squaring Shears
Gap Shears
Circular Shears
Alligator Shears
Slitting Shears
Shovel Making Machinery
Automatic Dial and Roll Feeds
Sprue Cutters

Dies and Special Machinery for the manufacture of all classes of sheet metal stampings, edge tools and drop forgings.

Used in the Manufacture of

Adding Machines
Air Rifles
Agricultural Implements
Axes
Armature Dics and Segments
Automobile Parts
Beds
Baby Carriage Hardware
Builders' Hardware
Bottle Cases
Bridge Parts
Burial Cases
Bicycle Parts
Brass Goods
Buckles
Burners
Bath Tubs
Cement Pallets
Cement Reinforcements
Cash Registers
Can Machinery
Candy Pails
Castors
Coins
Cigarette Boxes
Coal Hods
Cornice Work
Cuspidors
Cutlery
Dripping Pans
Drop Forgings
Electrical Goods
Elevator Buckets
Enamel Ware
Elbows, Crimped and Pieced
Expanded Lath
Garbage Cans
Gas Meters
Grease Cups
Gas Fixtures
Harness Trimmings
Hinges
Horse Shoes
Kitchen Boilers and Utensils
Lamps
Lead Kegs
Lanterns
Metal Furniture
Metal Signs
Metal Horse Collars
Metal Shingles
Metal Tiles
Metal Wheels
Metal Measures
Mail Boxes
Match Boxes
Metallic Ceilings
Nut Locks
Oil Stoves
Paint Tubes
Picture Frames
Pieced Tinware
Pipe Couplings
Plumber Supplies
Paper Plaques and Plates
Plasters
Pulleys
Railroad and Mining Tools
Range Boilers
Refrigerators
Radiators
Rubber Goods
Shovels
Silverware
Sinks
Speaking Tubes
Spoons
Stencils
Stoves and Trimmings
Stove Pipe
Steel Pulleys
Steam Cookers
Steel Barrels
Steel Wagons
Steel Cars, Freight and Passenger
Sewing Machines
Saws
Structural Iron Work
Typewriters
Tin Canisters
Tobacco Boxes
Toys
Trunk Trimmings
Vapor Stoves
Wash Tubs
Washers
Wheel Barrow Bodies
Zinc Work

In addition to the above we make a specialty of new equipment for the manufacture of any product that it is practical to make from sheet metal. The uniformity in size and shape obtainable in stampings, which is so difficult to produce in castings, and the fact that they are much less expensive to assemble and finish, continually bring us new lines of work.

We are very solicitous of inquiries of this character, and are pleased to furnish estimates to anyone sending samples or blue prints.

Clutches

The "Toledo" Automatic Pin Clutch ....Code Word............
Johnson Clutch ....Code Word............
The "Toledo" Rocker Arm Clutch ....Code Word............
The "Toledo" Patented Sliding Block Clutch ....Code Word............
The "Toledo" Patented Friction Clutch ....Code Word............

The five styles of clutches given above are used with a view to obtaining the best results on the different presses and shears according to the work to be performed. We have, after very careful and thorough tests, applied the different types of clutches to our standard machines as follows:

The "Toledo" Automatic Pin Clutch on all flywheel Presses when the speed is from 80 to 120 revolutions per minute.

The Johnson Clutch on all shears up to 12 gauge.

The "Toledo" Patented Sliding Block Clutch on all geared Presses and heavy Shears above 12 gauge.

The "Toledo" Patented Friction Clutch on all toggle drawing and reducing Presses of long stroke.

The "Toledo" Rocker Arm Clutch can be fitted to all plain Presses on order.

The "Toledo" Patented Clutch Safety or Lock, illustrated on page 15, can be attached to any of our Presses where automatic clutches are used. This attachment, as designed, is an absolute safeguard in preventing the Press from repeating, or a second engagement of the clutch taking place without the operator first removing his foot from the treadle and again depressing the treadle for a second engagement. This device throws the responsibility entirely upon the operator for the second stroke of the machine and is intended to prevent accidents to both the operator and the die.

This attachment is furnished only on order, the price varying according to the style of machine and type of clutch to which it is to be applied.

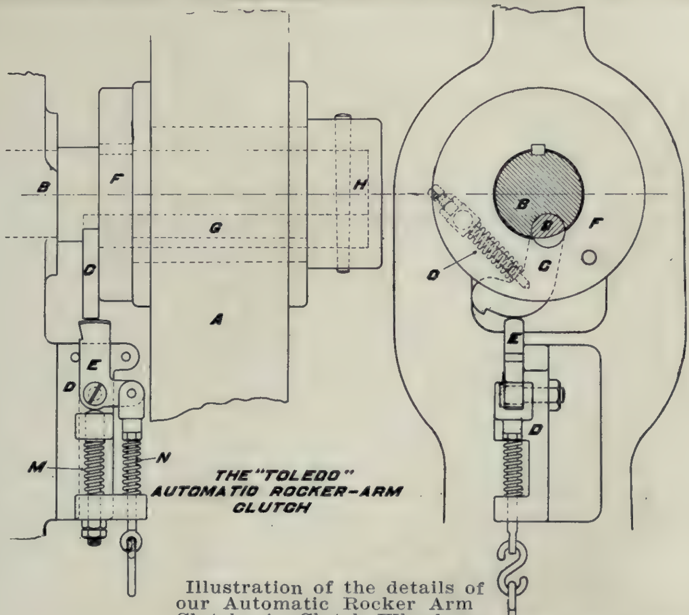


Illustration of the details of our Automatic Rocker Arm Clutch; A—Clutch Wheel or Gear; B—Crank Shaft; C—Rocker Arm; D—Trip Bracket; E—Trip Dog; F—Clutch Collar; G—Rocker Shaft; H—Shaft Cup Collar; M—Trip Dog Spring; N—Treadle Rod Spring; O—Rocker Arm Spring.

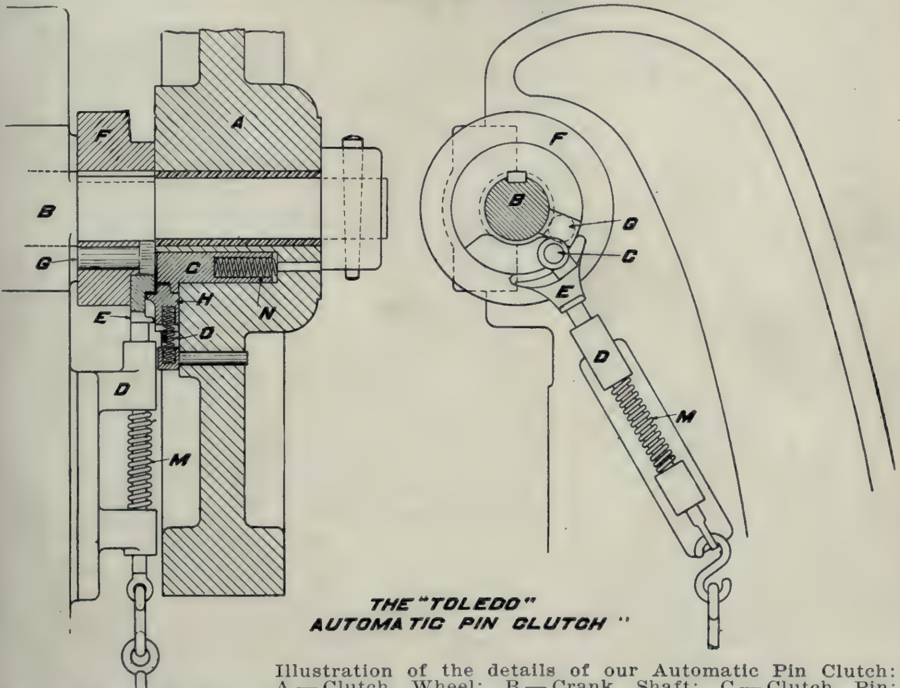
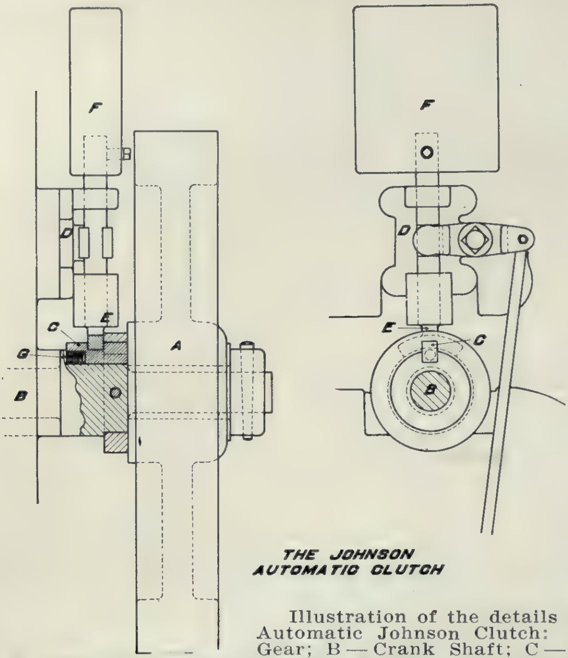
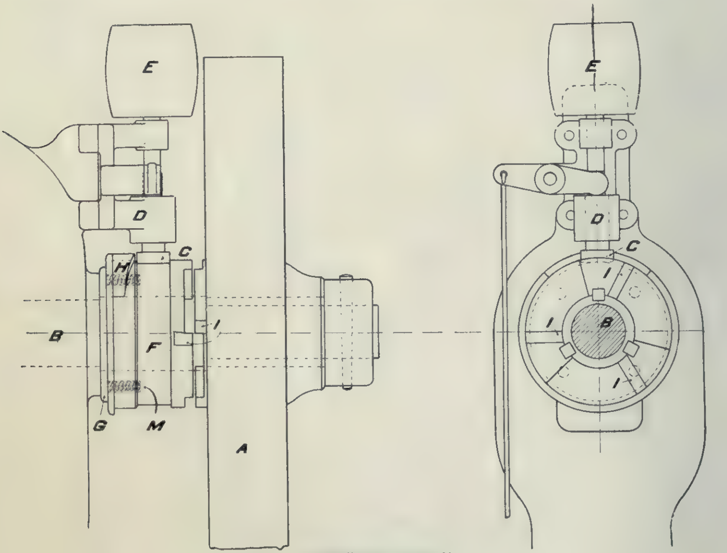


Illustration of the details of our Automatic Pin Clutch: A — Clutch Wheel; B — Crank Shaft; C — Clutch Pin; D—Trip Bracket; E—Trip; F—Drive Collar; G—Drive Collar Pin; H—Clutch Pin Block; M—Trip Spring; N—Clutch Pin Spring; O—Clutch Pin Block Spring; P—Shaft End Collar.



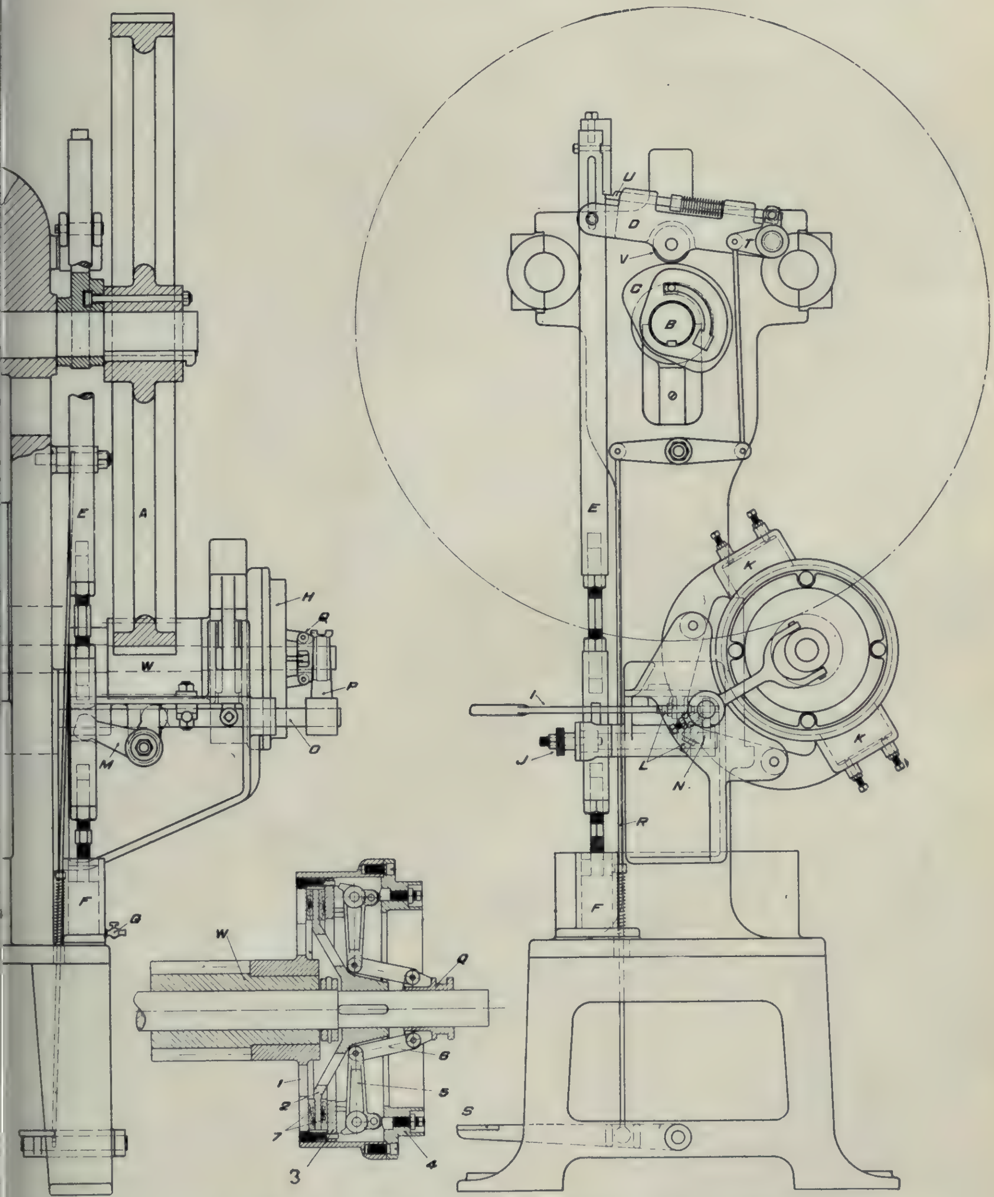
THE JOHNSON AUTOMATIC CLUTCH

Illustration of the details of construction of our Automatic Johnson Clutch: A — Clutch Wheel or Gear; B — Crank Shaft; C — Clutch Pin; D — Trip Bracket; E—Trip; F—Gravity Releasing Weight; G—Clutch Pin Spring.



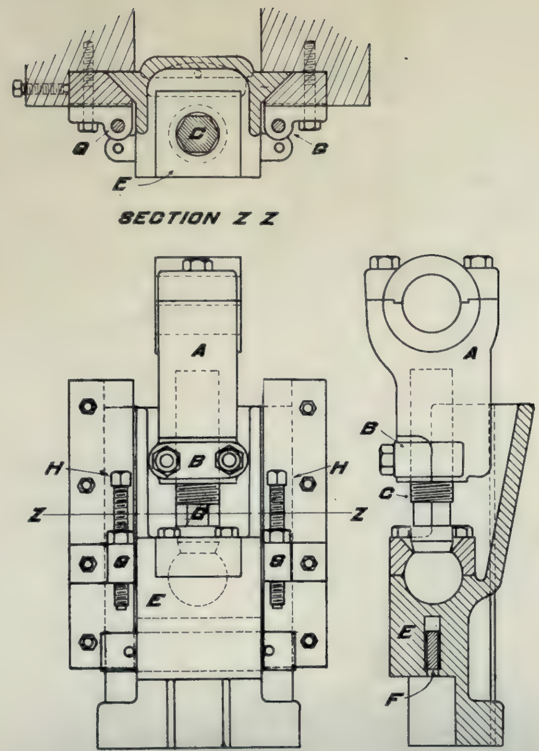
THE "TOLEDO" AUTOMATIC SLIDING BLOCK CLUTCH WITH GRAVITY RELEASE PATENTED

Illustration of the construction of details of our Automatic Block Clutch, with Patent Gravity Release: A—Clutch or Gear Wheel; B—Shaft; C—Releasing Roll; D—Trip Bracket; E—Gravity Weight; F—Sliding Block; G—Spring Plate; H—Cam Release; I—Steel Facings.



"TOLEDO" Patented Friction Clutch is not only the simplest but also the most powerful friction clutch perfected for power press operation. The number of operating parts is reduced to a minimum. The almost instantaneous release and grip, combined with the increased friction and breaking surface offered, make this the most powerful quick acting type of friction clutch for power press use.

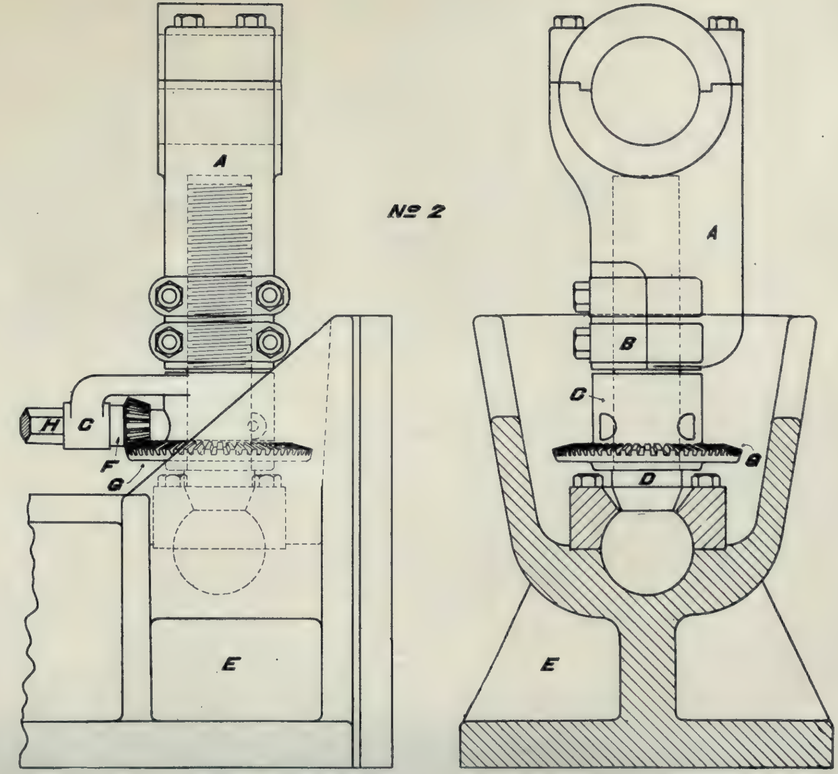
№ 1



THE "TOLEDO" SINGLE CRANK SLIDE

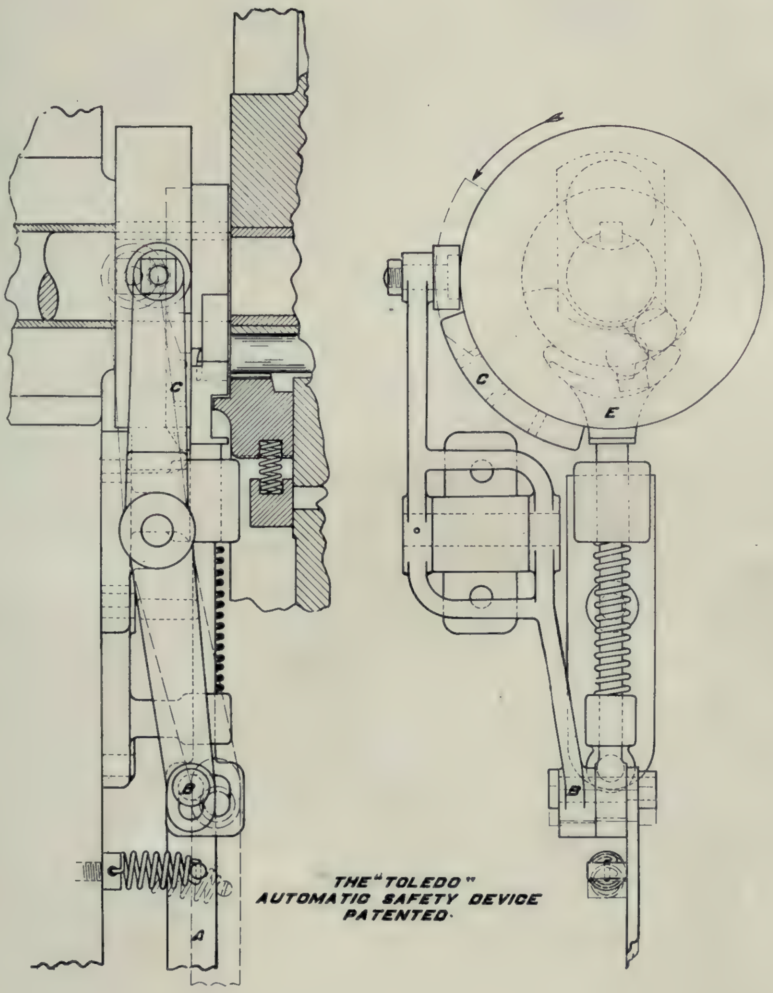
Illustration No. 1 shows the construction of the "Toledo" Single Crank Slide and Connection, also Automatic Knock-out; A—Connection; B—Screw Cap or Clamp; C—Steel Connection Screw; E — Slide; F — Knock-out Bar; G — Knock-out Screw Bracket; H—Knock-out Screw.

№ 2



THE "TOLEDO" DOUBLE CRANK SLIDE

Illustration No. 2 shows the construction of The "Toledo" Double Crank Slide Connection and Bevel Gear Adjustment; A—Connection; B—Screw Cap or Collar; C—Bevel Gear Bracket; D—Steel Connection Screw; E—Slide; F—Pinion; G—Bevel Gear; H—Adjustment Shaft.



THE "TOLEDO"
AUTOMATIC SAFETY DEVICE
PATENTED.

ILLUSTRATION of our Patented Automatic Safety Device described on page 10. The treadle rod A being depressed engages the clutch. The pin B in the cam brace remains in the same position, as shown, unless the operator keeps the treadle rod down, and in that case the cam C on the drive collar disengages the treadle rod, which takes the position of the dotted lines as shown in illustration 2, leaving the clutch free to be disengaged by the gravity weight or spring.

Standard Dial Feeds

Number of Dial Feed	A	B	C	D
Fits Presses Number	1-2 12-31	3-13 23-32	4-14-24 34-74	5-15-25 35-75
Price	$.....	$.....	$.....	$.....
Code Word	....	....	....	....
Diameter of dial ... inches	12	14	16	18
Diameter of holes in dial ... inches	1¾	2	2⅜	2¾
Distance center of dial to center of press	4½	5¼	6	6½
Number of holes	10	10	10	10

We can apply, to nearly all of our standard Presses, various kinds of dial feeds for automatically carrying blanks or shapes through the different progressive operations, sometimes as many as four successive operations being performed in this way.

Our ratchet feed with locking or pilot device brings with positive certainty the edge of punch and die together for blanking and forming operations, and enables the operator to perform from five to six times as much work in a day as can be obtained through independent dies. They are used for various classes of work where drawing, perforating and trimming operations are necessary.

The four standard sizes given above fit the Presses under which they are described. Prices are without dies or bushings.

We can, on order, build feeds of this kind to fit any of our Presses to meet the special requirements of our customers. Estimates furnished on application.

Standard Roll Feeds

Number of Roll Feed	A	B	C	D
Fits Presses Number	1-2 12-31	3-13 23-32	4-14-24 34-74	5-15-25 35-75
Price of single roll feed	$.....	$.....	$.....	$.....
Code word	....	....	....	....
Price of double roll feed	$.....	$.....	$.....	$.....
Code word	....	....	....	....
Diameter and width of rolls ... inches	1¾x3½	3½x5	3½x8	5¼x9
Longest feed per stroke of press	....	....	Back Geared	Back Geared
Adjustable by 1-16 inch ... inches	1¼	2½	5	4

On order, we can attach single or double roll feeds to any of our Presses. Our single and double roll feeds, operated by either ratchet or rack gearing, are designed to meet the general requirements of the trade for attachments of this character. The rolls are automatically released, when desired, at each stroke of the Press, making it possible to have the pilot or punches properly locate the work with the greatest degree of accuracy, in this manner allowing for the expansion of stock caused by the multiple punching of holes or perforations in the material.

The table of dimensions covers a few standard sizes only on these attachments, as it is often necessary to embody special features in the design to meet the requirements of the work.

The "Toledo" Open Back Inclinable Presses

Nos. ½, ¾, 1, 2, 2½, 3, 3½ 4, 5, 5A, 6, 6A, and 6½

THE "Toledo" Open Back Inclinable Presses have been in use for the past twenty years and are well and favorably known to the leading manufacturers of sheet metal goods in Europe and America.

The patterns of these Presses are on new lines of the latest design, and possess many features not found in other makes.

A few of the special features on these Presses are:

An increased bed area and shut height or die space.

Phosphor bronze shaft bearings.

New form positive knockout in slide, illustrated on page 14, cut No. 1, which is operated by positive stops with screw adjustment. Construction is such that is is adjustable from front of slide and can be operated by a cam-actuated movement **DIRECT FROM CRANK SHAFT**. This latter feature is furnished only when ordered.

Slide adjusting or pitman screw is a high carbon steel forging and is clamped by means of a cap (not a lock or jam nut) which **BEARS SQUARELY AND DIRECTLY ON THE SCREW THREAD.**

THIS CLAMP NEVER WORKS LOOSE. (Illustrated on page 14.)

New pattern inclining attachment, which allows the Press to be readily adjusted from an upright to an inclined position, thereby facilitating the use of different dies and making Press specially advantageous for combination dies, forming, etc., as the work, as it rises from the die, naturally slides back by gravity instead of being pushed off the machine.

All gears and pinions are machine cut from the solid metal, in our own Gear Cutting Department, and are made of a special grade of dense metal particularly suited for the purpose.

These Presses are adapted to a wide range of work, including nearly every kind of blank cutting, forming, perforating, drawing, shaping and combination die work, covering a large portion of the operations needed in the manufacture of cans, pieced and stamped ware, petroleum cans, powder kegs, lamp and lantern trimmings, electrical and brass goods, armature discs and segments, bicycle parts, locks, silverware, spoons, stove and trunk trimmings, auto parts and a variety of articles too numerous to mention here.

A bolster plate, plain, solid or with opening as desired, can be furnished.

Oil cups, and a set of forged steel wrenches, furnished with each Press.

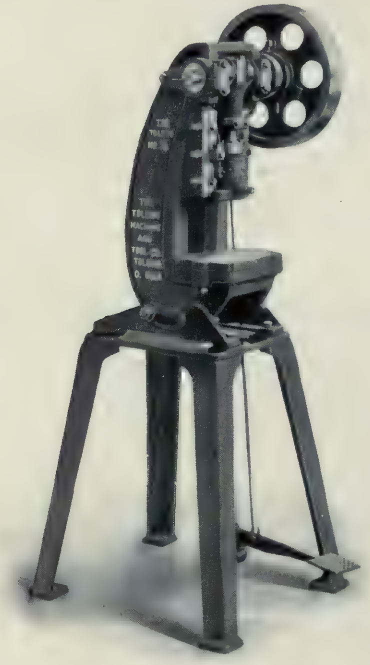
The "Toledo" Open Back Inclinable Presses

Number of Press	½	¾	1	2	2½	3	3½
Old Number	00						
Page of Catalogue	20		21	22	24	25	26
PLAIN PRESS							
Price for bench use, with bolster and knockout	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price on regular legs, with bolster and knockout	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight for bench use, about pounds	250	600	....	....	....	....	....
Weight on standard legs, about pounds	300	650	850	1250	1500	1800	2300
Area of bed and bolster, F. to B., R. to L. inches	6x9	7x12	8x14	10x16	12x18	12x18	13x20
Standard bed opening, F. to B., R. to L. inches	3 Diam.	4x6	5x8	6x9	7x10½	7x11	8x12
Intersecting circle, diameter inches	....	5	6	7	8	8	10
Width of opening in back inches	4	5	7	8	8½	9	10
Distance back from center of slide inches	3¼	3¾	4½	5½	6½	6½	6½
Standard stroke of slide (can be changed) inches	1	1¼	1¼	1½	1½	1½	2
Adjustment of slide inches	1	1½	2	2	2	2½	2½
Distance bed to slide, stroke and adjustment up inches	6	6	7	8	8½	8½	9½
Thickness of bolster plate inches	¾	1	1¼	1⅜	1½	1½	1½
Centers of bolt holes in slide, R. to L. inches	4	4½	5	5½	5½	6½	8
Recess in slide for punch stem inches	1 1/16	1 1/16	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16
Diameter and face of flywheel inches	14x2	18x3½	22x3½	24x3½	26x3½	28x4	32x5½
Weight of flywheel pounds	40	150	175	250	300	350	550
Speed of flywheel R. P. M	150	125	100	100	100	100	100
Height floor to shaft center inches	49	50	53	57	60	60	63
Floor space of legs, bench use, F. to B., R. to L. inches	16x10	21x11	....	....	....	....	....
Floor space over all, regular legs, F. to B., R. to L. inches	24x20	28x25	34x28	37x32	38x34	40x36	42x38
Floor space of legs, regular legs, F. to B., R. to L. inches	24x20	28x25	28x28	32x32	32x32	34x32	35x32
GEARED PRESS							
Price			$.....	$.....	$.....	$.....	$.....
Weight, about pounds			1050	1500	1750	2100	2800
Proportion of gearing, about			5:1	5:1	5:1	5½:1	5½:1
Diameter of gear inches			21	25	25	28	28
Size of balance wheel inches			18x3½	20x3½	20x3½	26x3½	26x3½
Weight of balance wheel pounds			125	150	150	225	225
Size of belt wheel inches			18x3½	20x3½	20x3½	26x3½	26x3½
Speed of belt wheel R. P. M.			330	330	330	330	330
Strokes of slide, per minute			66	63	63	60	60
Floor space over all, F. to B., R. to L. inches			34x32	38x36	38x36	42x42	44x44

The "Toledo" Open Back Inclinable Presses

Number of Press	4	5	5A	6	6A	6½
Old Number				5½		
Page of Catalogue	27	29	31	32	34	35
PLAIN PRESS						
Price with bolster and knockout	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	2700	3800	4100	5900	8200	8000
Area of bed and bolster ... inches	14x20	16x23	18x27	22x30	34x34	22x30
Standard opening in bed, F. to B., R. to L. ... inches	9x12	10x13	12x16	14x18	24x24	14x18
Intersecting circle, diameter ... inches	10	12	14	16	....	16
Width of opening in back ... inches	10	12	14½	15	23	18
Distance back from center of slide ... inches	7½	8½	9¼	10½	18	10½
Standard stroke of slide (can be changed) ... inches	2	2	2	2½	2½	2½
Adjustment of slide ... inches	3	3	3	3	3	3
Distance bed to slide, stroke and adjustment up ... inches	9½	10½	10½	12½	10	12½
Thickness of bolster plate ... inches	1¾	2	2	2½	3	2½
Centers of bolt holes in slide, R. to L. ... inches	8	9	9	10½	16	....
Recess in slide for punch stem ... inches	1 9/16	2	2	2	2	2
Diameter and face of fly wheel ... inches	32x5½	36x5½	36x5½	42x6½	42x6½	42x6½
Weight of fly wheel ... pounds	550	775	775	1050	1050	1050
Speed of flywheel ... R. P. M.	100	90	90	90	90	80
Height floor to shaft center ... inches	65	69	69	73	73	73
Floor space over all, F. to B., R. to L. ... inches	46x40	52x44	52x46	58x48	66x48	64x48
Floor space of legs, F. to B., R. to L. ... inches	38x34	44x34	44x37	48x34	64x32	54x30
GEARED PRESS						
Price	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	3200	4300	4650	6600	8950	8750
Proportion of gearing, about	6:1	6½:1	6½:1	6½:1	6½:1	7½:1
Diameter of gear ... inches	32	35	35	42	42	49
Size of balance wheel ... inches	28x4	30x5	30x5	32x5½	32x5½	38x6
Weight of balance wheel ... pounds	300	400	400	500	500	800
Size of belt wheel ... inches	28x4	30x5	30x5	32x5½	32x5½	24x5
Speed of belt wheel ... R. P. M.	330	330	330	290	290	275
Strokes of slide per minute	55	50	50	45	45	35
Floor space over all, F. to B., R. to L. ... inches	50x46	56x52	56x52	60x60	66x60	64x55

The "Toledo" No. ½ Open Back Inclinable Power Press

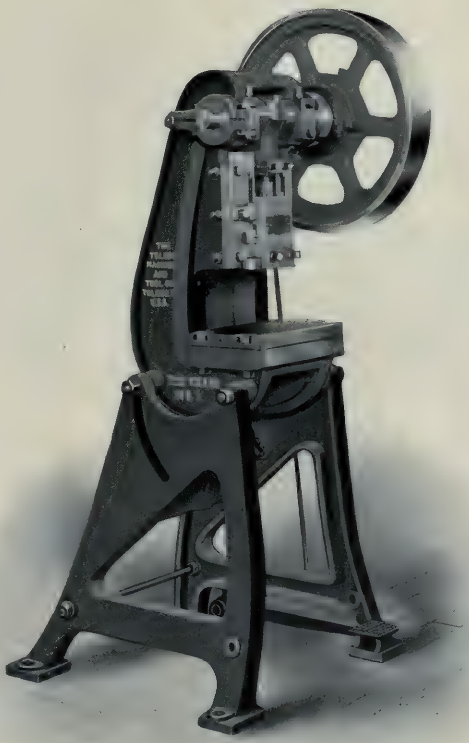


PRESS shown above is the smallest size we make in the Open Back Inclinable type of Press. This Press will not only handle the work of the ordinary foot Press, but will turn out a greater quantity of work. The open back feature permits the feeding of stock from right to left, or from front to back. Is adapted to the various blanking, perforating and forming operations on buttons, jewelers' trimmings, gaskets, or other light work.

In the inclined position these Presses can be used with combination dies, the work falling away from the dies by gravity. Numbers ½ and ¾ can be furnished as bench presses or on independent standards. These smaller sizes possess all the conveniences embodied in the larger Presses as shown on following pages. Total weight about 300 lbs.

General description, page 17. Dimensions, page 18. Code Word............

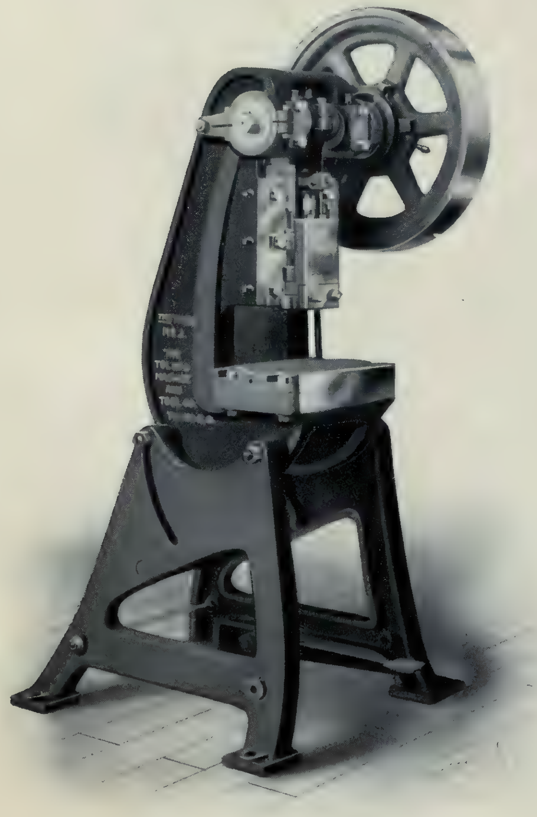
The "Toledo" No. 1 Open Back Inclinable Power Press



THE smaller sizes of this style Press as shown in the illustration above, are especially used for operating small cutting, blanking, perforating and forming dies, such as are extensively used in the manufacture of tobacco-tags, umbrella and pocket book trimmings, jewelry, burners, gas fixtures, pail ears, tops and bottoms for cans and boxes, small body blanks and a general line of small work in tin, brass, copper and aluminum. These presses are provided with a clutch which responds to the action of the foot treadle almost instantly. Total weight about 850 lbs.

General description, page 17. Dimensions, page 18. Code Word............

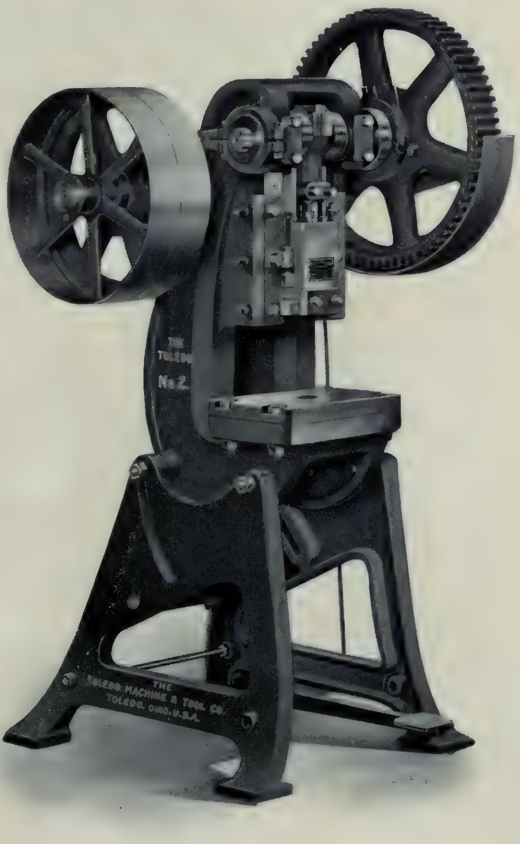
The "Toledo" No. 2 Open Back Inclinable Power Press



THE Press as above illustrated is the same in general construction and design as No. 1, but is specially adapted for a larger area of work from buttons to can bottoms 3 inches in diameter; or for other general work requiring a greater power or larger area of bolster that No. 1 Press. Total weight about 1,250 lbs.

General description, page 17. Dimensions, page 18. Code Word............

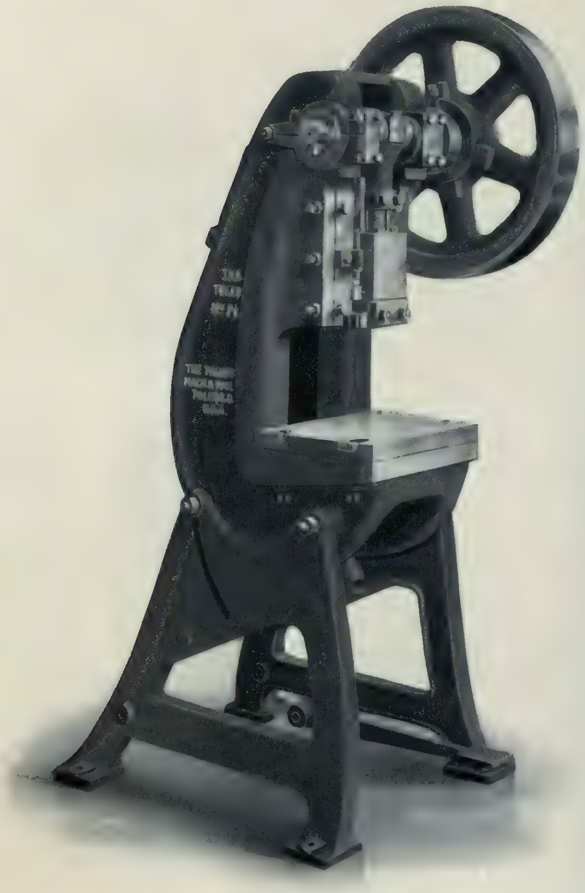
The "Toledo" No. 2 Open Back Inclinable Power Press Geared



THIS illustrates the standard pattern of our No. 2 Press, Geared, which is so arranged that we can furnish it with any stroke required from 1½ inches to 4 inches. All gearing is machine cut and incased in iron guards to insure safety to the operator. Total weight about 1,500 lbs.

General description, page 17. Dimensions, page 18. Code Word............

The "Toledo" No. 2½ Open Back Inclinable Power Press

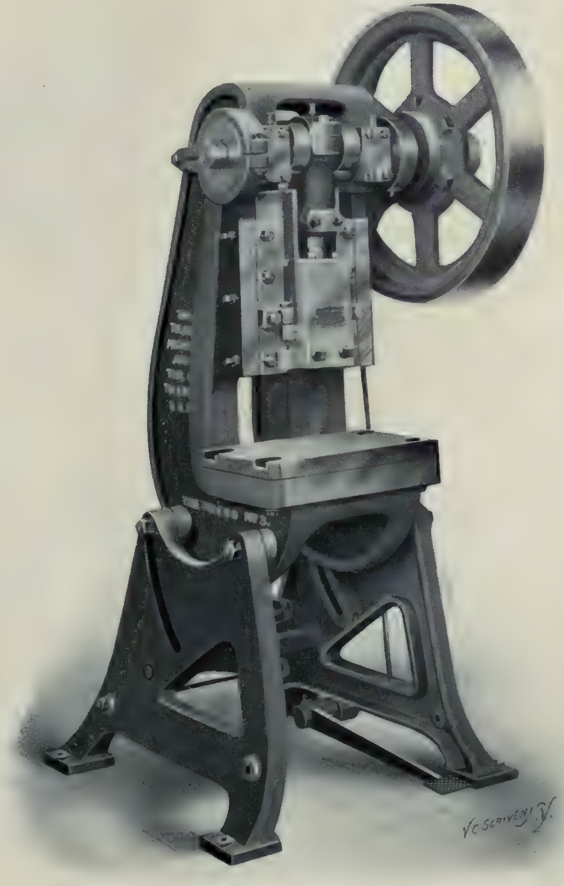


THIS Press is equipped with standard bar knockout in slide; slide ways and gibs are extra long.

The main bearings for shaft and clutch wheel on this and the larger size presses of this type are bronze bushed. Press is adapted to work on radiator tubes and other small auto parts, and a general line of stampings within the capacity of the Press. Total weight about 1,500 lbs.

General description, page 17. Dimensions, page 18. Code Word............

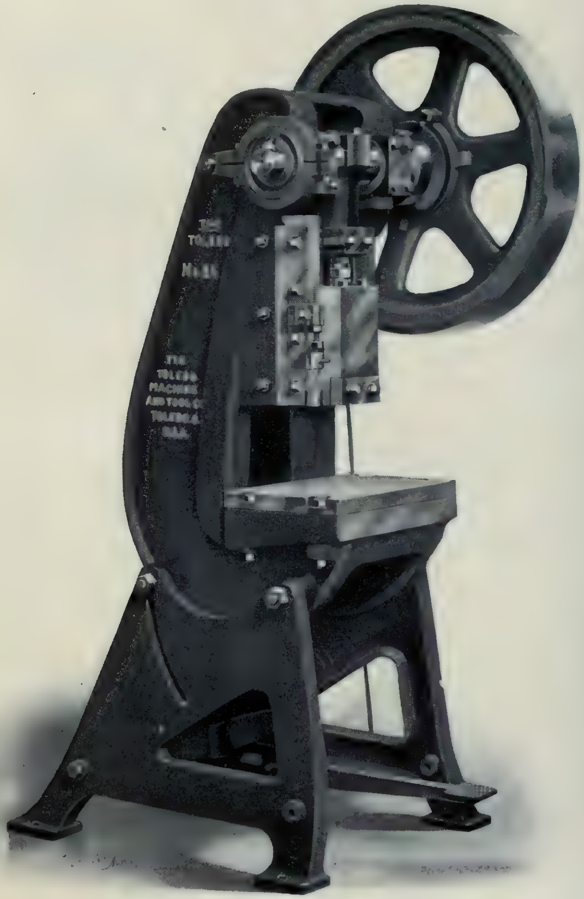
The "Toledo" No. 3 Open Back Inclinable Power Press



OUR No. 3 Press as above represented will cut, draw and emboss covers and bottoms of fruit, baking powder and medium size meat cans and perform a general line of blanking, perforating, cutting, forming operations. Total weight about 1,800 lbs.

General description, page 17. Dimensions, page 18. Code Word...........

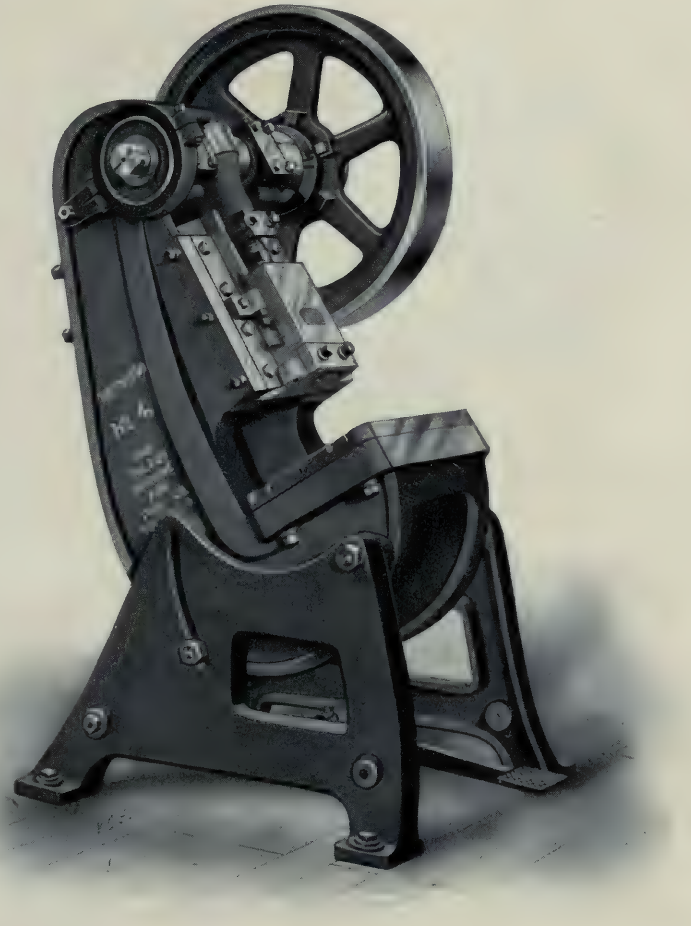
The "Toledo" No. 3½ Open Back Inclinable Power Press



PRESS as illustrated above is used for a general line of blanking, forming and combination die work, such as covers and bottoms for medium and small size cans and boxes, and is also largely employed by manufacturers of automobiles, etc., for blanking, forming and perforating step-plate and fender brackets and other small stampings; also for bending, perforating and flattening operations on tubing and a wide variety of similar work. Total weight about 2,300 lbs.

General description, page 17. Dimensions, page 18. Code Word...........

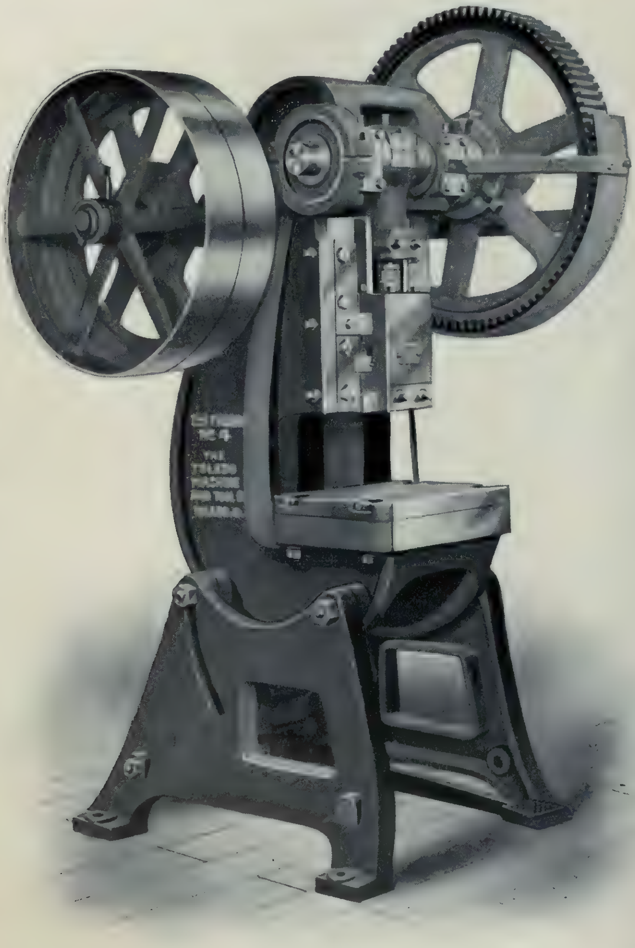
The "Toledo" No. 4 Open Back Inclinable Power Press In Inclined Position



THE new pattern inclining attachment which is fitted to all "Toledo" Open Back Power Presses, is operated by hand wheel and adjusting screw. The "Toledo" No. 4 Press, as illustration represents, is specially adapted for cutting and forming in one operation. With the press in inclined position, the work, as it rises from the dies, will slide back by gravity instead of having to be pushed by hand from the machine. This Press is specially adapted to operating combination cutting and forming dies for covers and bottoms of lard and flaring pails, large canisters, varnish and sardine cans, pieced and stamped tinware, locks, hardware specialties, mail boxes, powder kegs, electrical goods, and to a general line of blanking, perforating, forming and embossing metal of all kinds. Total weight about 2,700 lbs. Can be used in upright or inclined position.

General description, page 17. Dimensions, page 19. Code Word...........

The "Toledo" No. 4 Open Back Inclinable Power Press Geared

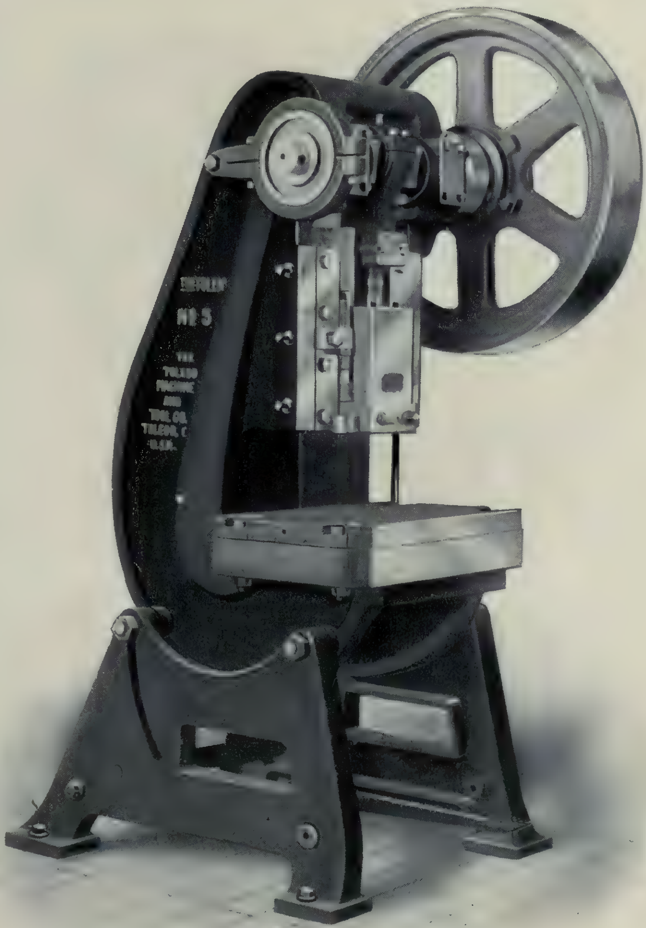


THE above illustrates our No. 4 Geared Open Back Inclinable Press, which is built very heavy throughout and is of such substantial construction that it will stand the heaviest work possible for a Press of its size and capacity. It is especially suited for manufacturing stampings used for builders' hardware, sewing machine, typewriter and gun parts, and small automobile stampings. This type of Press is also preferable where a long stroke is required for trimming, reducing or deep forming on pieced tinware and various articles of tin, brass, copper, aluminum, etc.

Total weight about 3,200 lbs.

General description, page 17. Dimensions, page 19. Code Word............

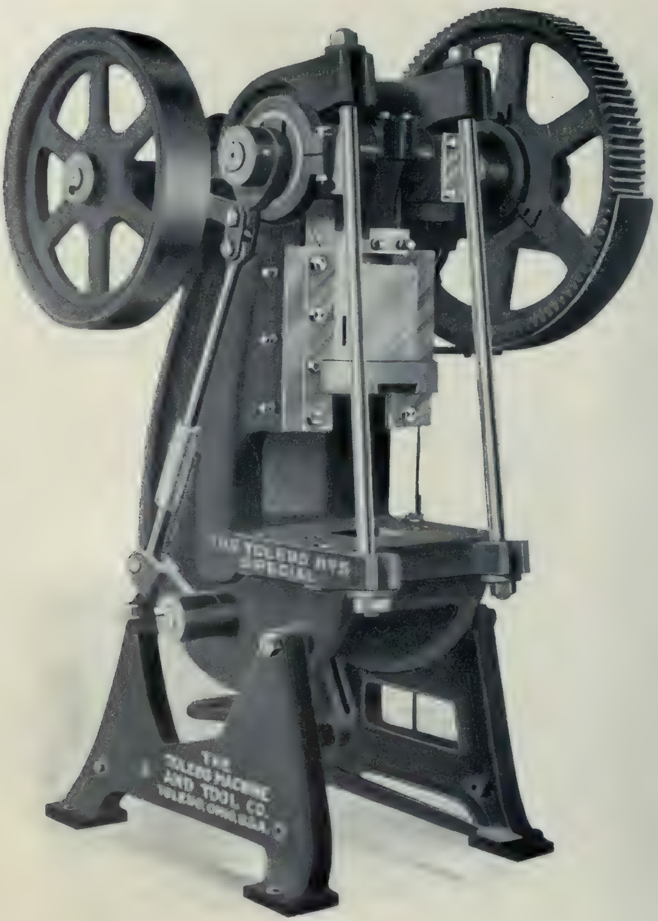
The "Toledo" No. 5 Open Back Inclinable Power Press



THIS popular Press is adapted to operating blank cutting and combination dies for tops and bottoms of varnish and petroleum cans, lard pails, dish and milk pans, coal hods, shovels, bucket covers, powder kegs, blanks for electrical purposes, and a general line of blanking and forming operations. Also used by automobile manufacturers for cutting blanks for hub caps, ball cups, dust caps, etc. Total weight about 3,800 lbs.

General description, page 17. Dimensions, page 19. Code Word............

The "Toledo" No. 5 Open Back Inclinable Power Press Geared, Special

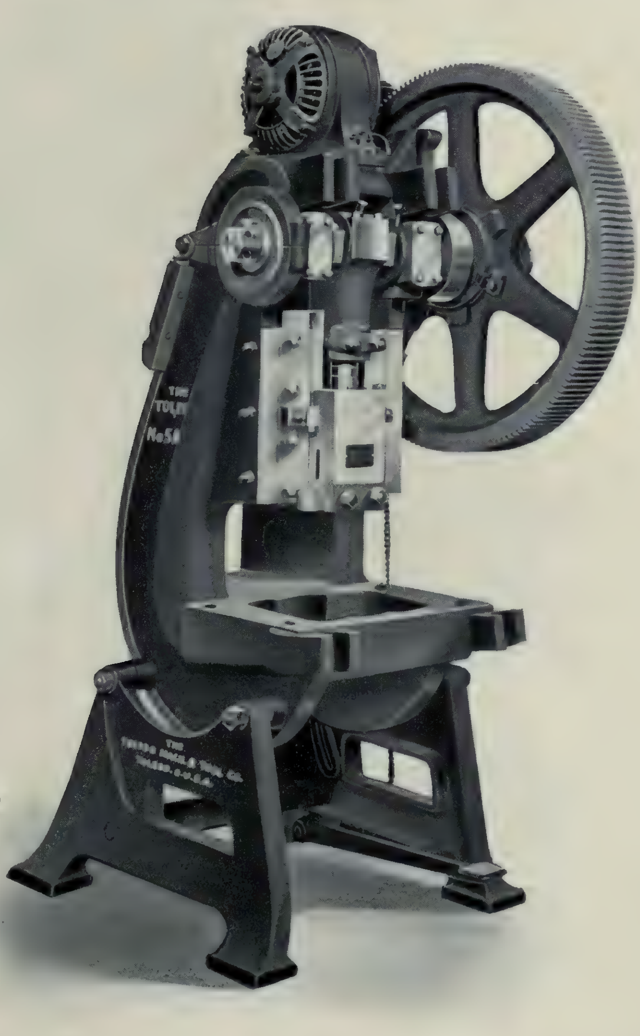


THE illustration above shows a special design of our geared No. 5 Open Back Inclinable Power Press. It is fitted with extra long stroke and with slide having a wide flange with a dovetail recess. Cam actuated automatic lower knockout, with adjustable cam movement, is also shown. This makes a most desirable combination for drawing, reducing and forming steel or brass shells and similar work. The cam movement for ejecting the work from the dies is adjustable, and arranged with a quick return or drop enabling the operator to feed and remove the work while keeping the press in almost constant motion, in this way materially increasing the output.

Tie rods are supplied when specially ordered, to adapt the machine for unusually heavy work. Total weight about 4,300 lbs.

General description, page 17. Dimensions, page 19. Code Word............

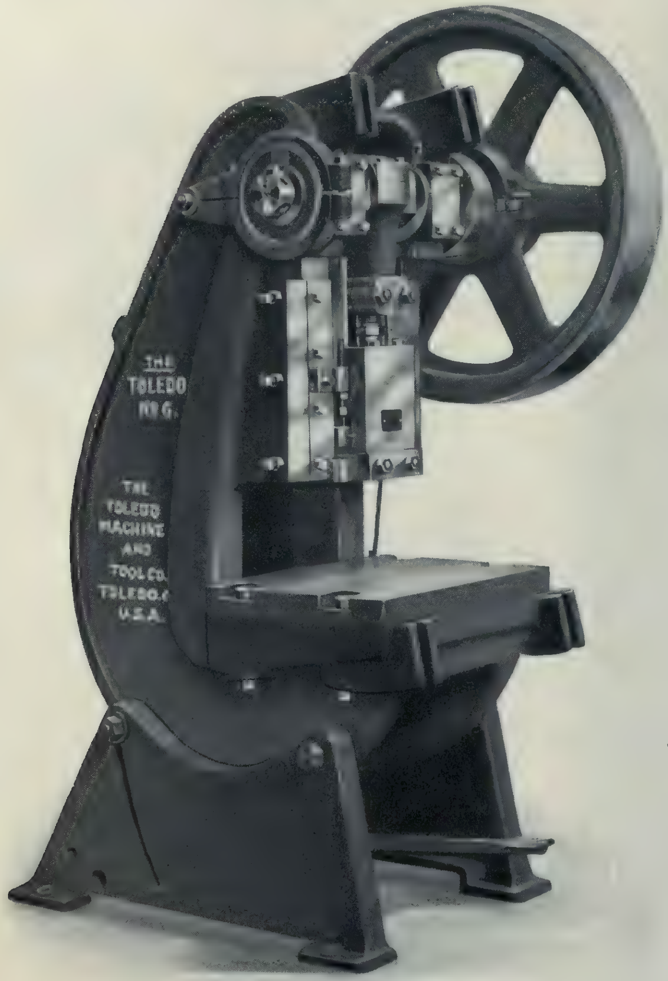
The "Toledo" No. 5-A Open Back Inclinable Power Press Motor Driven



THIS Press, as shown above, has the same size wheel and shaft and operating parts as the No. 5, but with enlarged bed area and bed opening, which adapts it to operating large blanking dies. It is commended as a most practical machine in every particular. The illustration also shows a simple, compact method of applying the direct connected motor drive. Speed 90 to 110 strokes per minute. Total weight about 4,300 lbs.

General description, page 17. Dimensions, page 19. Code Word............

The "Toledo" No. 6 Open Back Inclinable Power Press

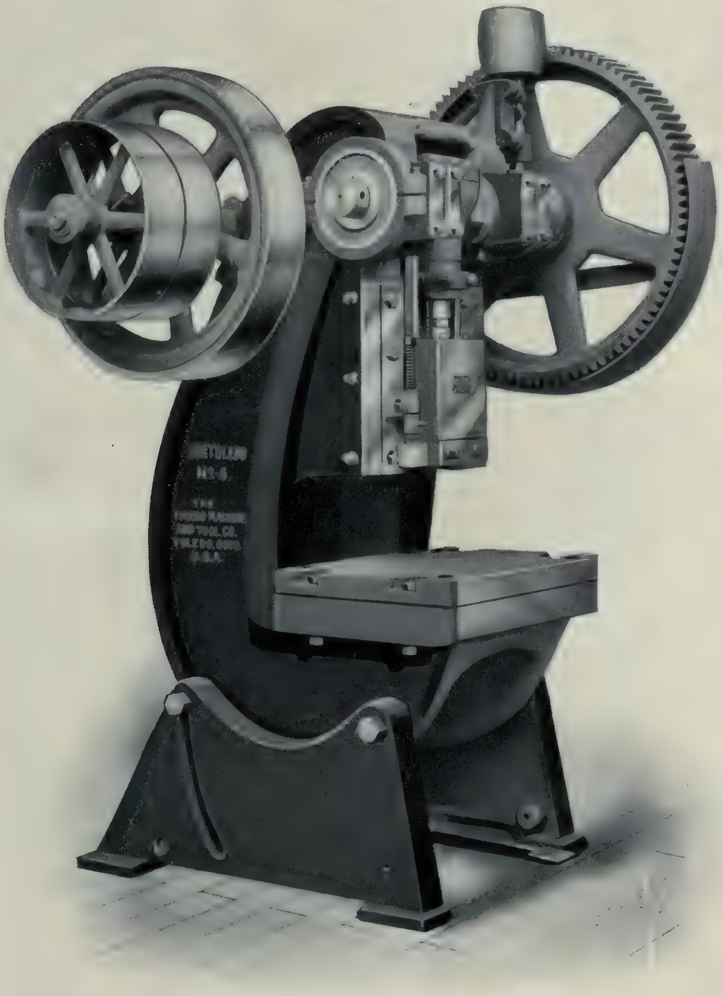


OUR new heavy pattern No. 6 Press, as shown in above illustration, has a capacity for cutting, drawing and forming steel wheel hubs, metal picture frames, stove trimmings, covers and flanges for air-tight stoves, parts for oil heaters, gas ranges, mail boxes, chandelier trimmings, cash registers, adding machines, bicycles, metal furniture, fire-arms, etc.; also for cutting saw blanks, armature discs and segments and a general line of large and small stampings. Total weight about 5,900 lbs.

General description, page 17. Dimensions, page 19. Code Word...........

The "Toledo" No. 6 Open Back Inclinable Power Press Geared

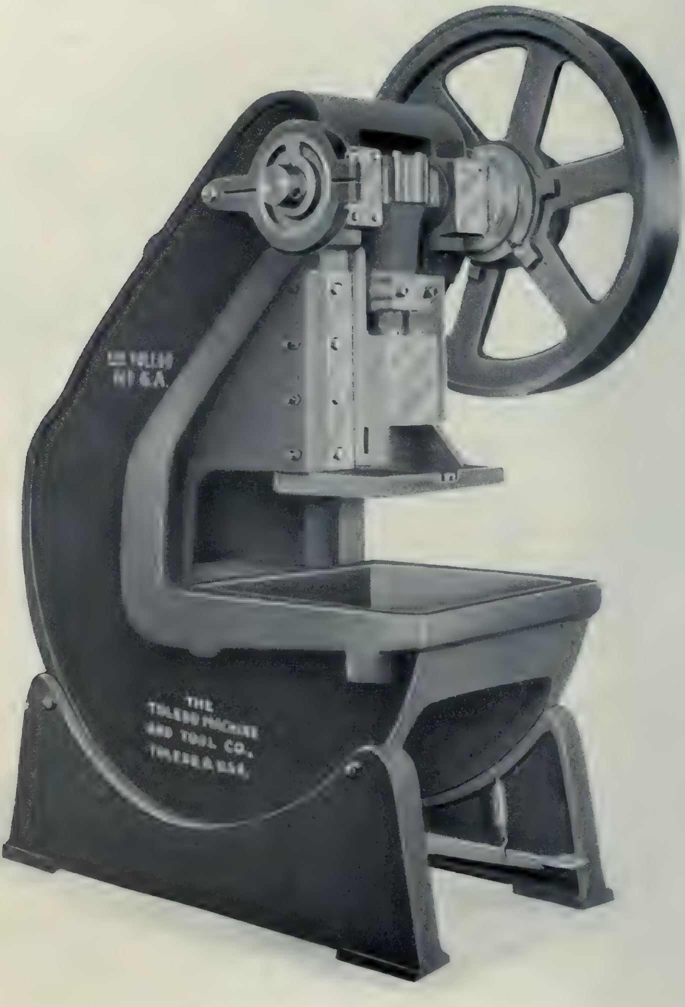
(Patented)



OUR No. 6 Power Press, Geared, as shown in illustration above, is specially suited for operating large combination, cutting and forming dies; for deep drawing and reducing; heavy cutting, perforating and embossing, and for a general line of heavy work where a geared press with slow slide motion is required. Total weight about 6,600 lbs.

General description, page 17. Dimensions, page 19. Code Word............

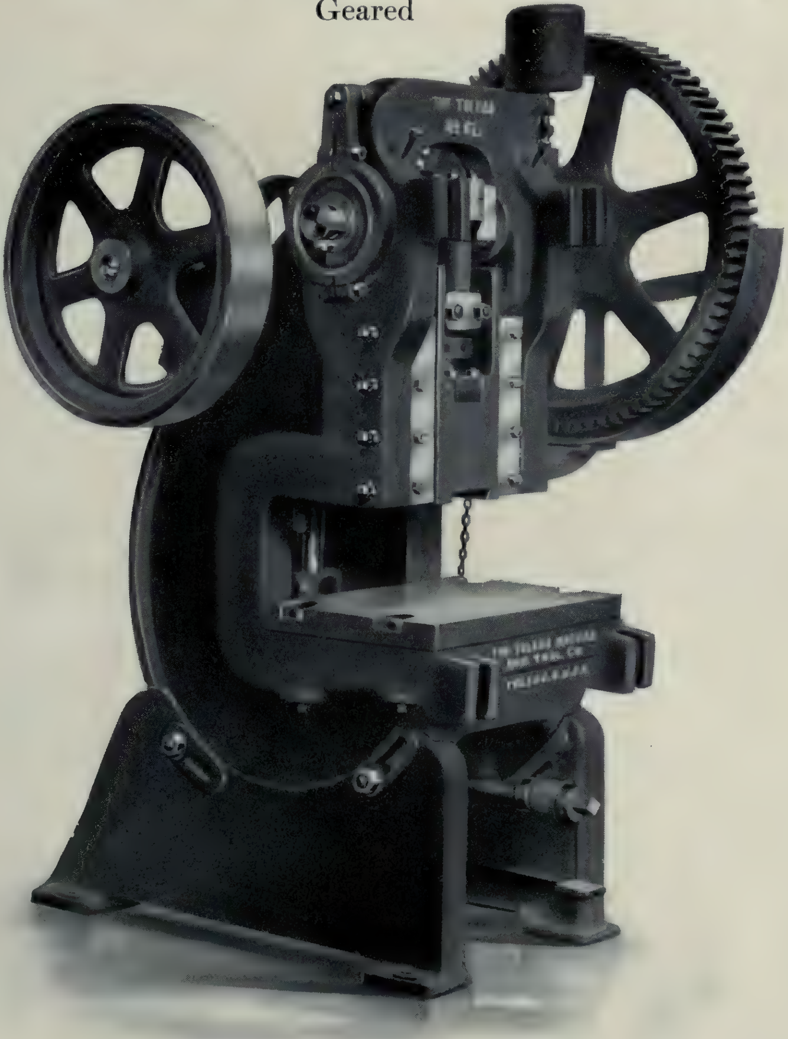
The "Toledo" No. 6-A Open Back Inclinable Power Press



THIS deep gap Press, as illustrated above, is designed particularly for dies for cutting large blanks for pieced tinware, stamped and enameled ware, auto doors and other automobile stampings, etc. The large flange on slide or head gives excellent support to the broad surface of blanking or cutting punches, and the unusually large bed opening and area adapt this Press to a very wide range of large blanking work. The special standards or legs permit using the press in an upright or inclined position, as desired. It has proven to be a most satisfactory machine for the class of work outlined. Total weight about 8,200 lbs.

General description, page 17. Dimensions, page 19. Code Word...........

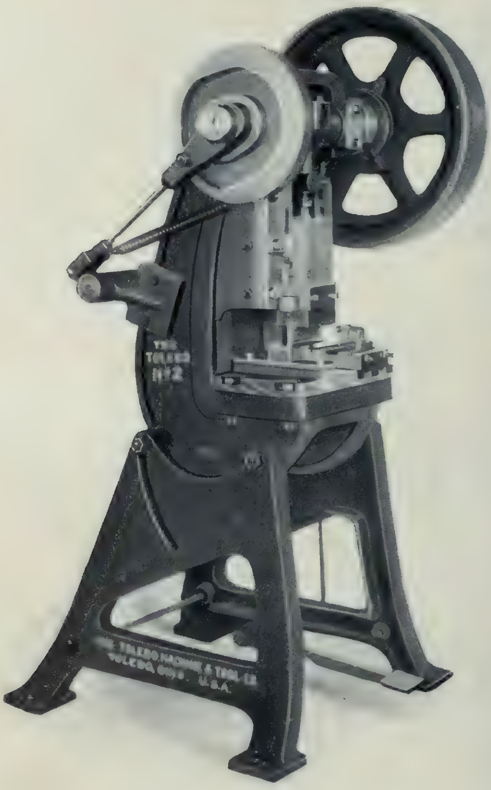
The "Toledo" No. 6½ Open Back Inclinable Power Press Geared



THIS Press, as shown in illustration above, while designed specially for stampings in the heavier gauges of metal, is adapted to a wide range of work requiring a slow, powerful slide motion for heavy combination cutting and forming, drawing and reducing, perforating and embossing operations, and is employed by manufacturers of automobiles, cream separators, etc., for work on medium and small parts of the heavier gauges of metal. With press in an inclined position the work, as it leaves the dies, slides back by gravity instead of having to be removed by hand, thus facilitating the work. Total weight about 8,700 lbs.

General description, page 17. Dimensions, page 19. Code Word............

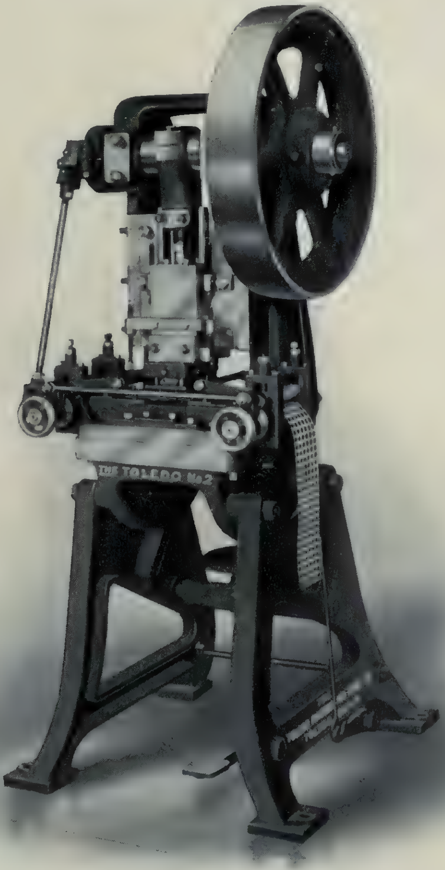
The "Toledo" No. 2 Open Back Inclinable Power Press With Cam Actuated Sliding Die



THE automatic movement, represented on Press as shown in illustration above, carries the die out or toward the operator to permit his placing the work in position on same without danger or accident to himself; the die is then automatically returned to its correct position under the punch, when the work is completed and automatically ejected, after which the operation is repeated. With this attachment it is possible to practically double the output in forming and finishing blades for curry combs, small tubes, lock or gun parts and similar work. Total weight about 1,250 lbs.

General description, page 17. Dimensions, page 18. Code Word...........

The "Toledo" No. 2 Open Back Inclinable Power Press With Double Roll Feed



THE above illustration shows our Automatic Double Roll Feeding Attachment fitted to a No. 2 Press, adapting it to the rapid production of small articles, especially in large quantities, where several progressive operations are required.

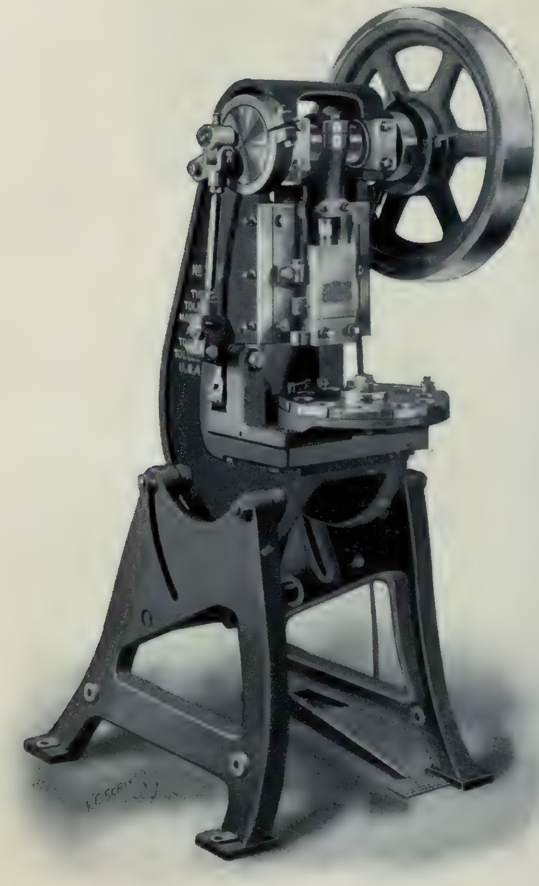
This Press is designed for blanking, perforating and forming on small work. The stock is automatically fed through the press; an automatic release for the rolls insures the proper location of the work on the dies.

Illustration shows Press fitted for perforating and cutting six washers complete at each stroke, thereby reducing the labor cost and materially increasing the production on work of this character. Total weight about 1,450 lbs.

We build a variety of single and double roll feeds and special feeds to suit all classes of work.

General description, page 17. Dimensions, page 18. Code Word............

The "Toledo" No. 2 Open Back Inclinable Power Press With Dial Feed

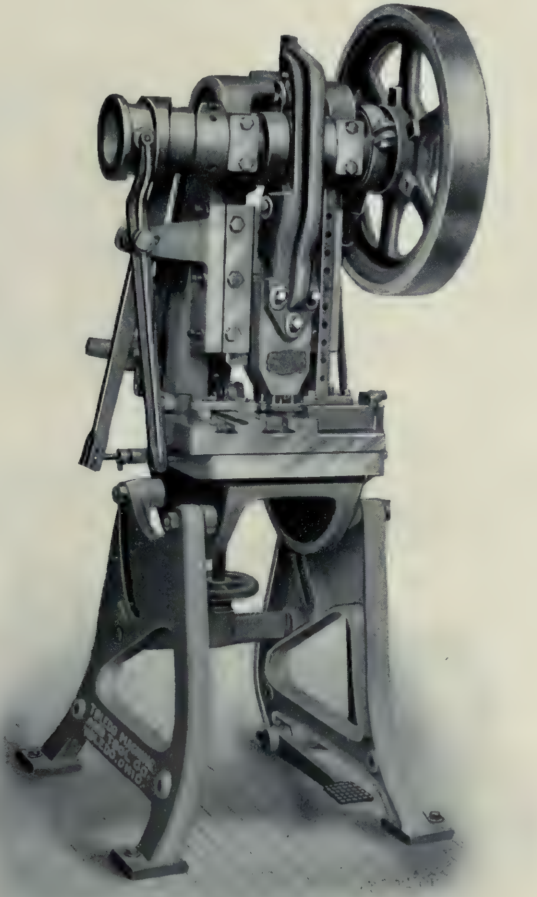


THE above illustrates Dial Feeding Attachment as applied to our No. 2 Open Back Inclinable Press and can be used for numerous purposes, such as perforating, forming, drawing or reducing ferrules, atomizer and screw tops and similar work.

Details of construction may be modified according to the work required. Total weight about 1,350 lbs.

General description, page 17. Dimensions, page 18. Code Word...........

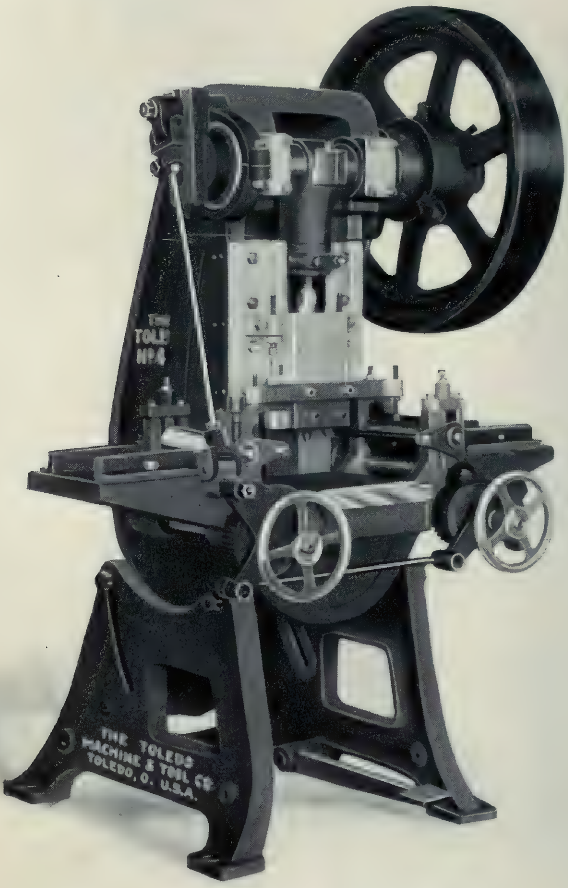
The "TOLEDO" No. 2 Open Back Inclinable Power Press With Hopper Feed



THE above illustrates Special Automatic Feeding Attachment with hopper or magazine barrel, as applied to our No. 2 Open Back Inclinable Press. It is designed for operating in connection with dies for forming double bends on fence clips, staples and similar work. Total weight about 1,350 lbs.

General description, page 17. Dimensions, page 18. Code Word...........

The "Toledo" No. 4 Open Back Inclinable Power Press With Double Roll Feed



THE Press, as illustrated above, shows the Automatic Double Roll Feeding Attachment, as applied to our No. 4 Open Back Inclinable Press. The stock is automatically fed through the Press. The attachment is fitted with an automatic release for the rolls which insures the proper location of the work on the dies.

Adapted for rapidly producing large quantities of small articles; where several progressive operations are required, it is of great advantage and does the work most satisfactorily. Total weight about 3,000 lbs.

General description, page 17. Dimensions, page 19. Code Word...........

The "Toledo" Open Back Presses

Nos. 74, 75, 75A, 75B, 76, 77, 77A, 78, 79, 79½, 79¾

DURING the last twenty-four years these Presses, like those of our Open Back Inclinable type, have become very popular among the most prominent sheet metal manufacturers throughout the country.

They are built with fixed legs, upright or inclined, as ordered.

The patterns are on new lines and embody all the desirable features found on our Presses Nos. 1 to 6-A, described on page 17, with exception of inclining attachment.

The construction of this type of Press is such that at slight additional expense, alterations can be made adapting them to special work, increasing or decreasing the distance from bed to slide, and also changing bed opening and bed area.

Provided with phosphor bronze shaft bearings; our regular automatic pin clutch; positive automatic knockout in slide; slide having extra long and rigid bearings, all of which are illustrated on page 14, illustration Number 1.

These Presses are specially adapted to punching, shearing, perforating, bending and forming operations in the manufacture of ornamental and structural iron work, automobile parts, agricultural implements, wind mills, wheel barrows, go-carts, builders' hardware, typewriter and sewing machine parts and the heavier classes of similar work, also for trimming drop forgings.

The Automatic Pin Clutch is used on all the small sizes of this series and the "Toledo" Sliding Block Clutch on all the large sizes.

For automatic feeds, see page 16.

Inclined position shown on page 46.

This type of Press, mounted on inclined standards and fitted with a long stroke or slide motion, with a greater distance bed to slide than the standard Presses, is specially adapted to trimming and finishing deep stamped shells, enameled ware and other work.

The "TOLEDO" Open Back Presses—With Fixed Legs, Upright or Inclined

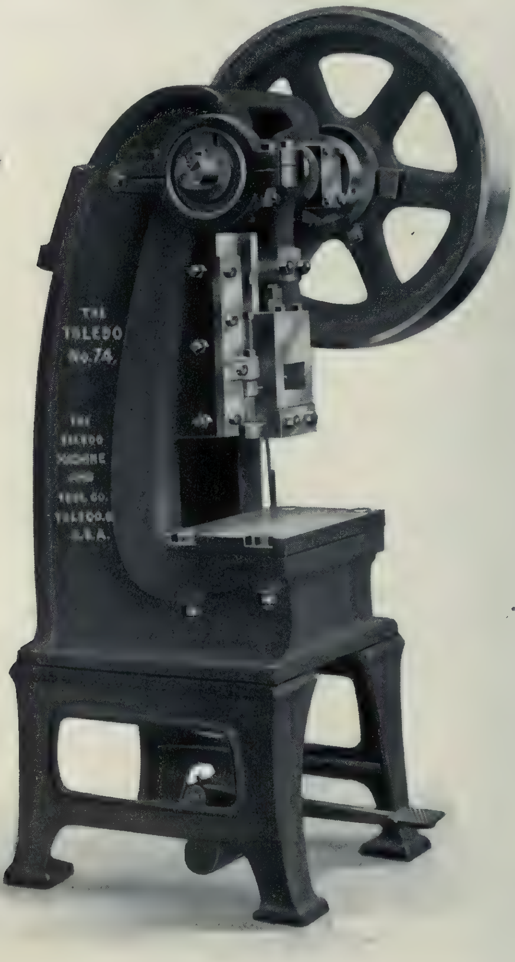
Number of Press	74	74A	75	75A	75B	76	76A
Old Number							
Page of Catalogue	44		46	48	49	50	
PLAIN PRESS Code Word							
Price, including bolster plate and knockout in slide	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra plain bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	2600	2850	4050	4200	4850	6050	6300
Area of bed ... inches	12x20	16x20	14x23	18x23	24x30	18x27	24x27
Standard opening in bed, F. to B., R. to L. ... inches	7x13	11x13	8x15	12x15	16x25	10x18	14x18
Width of opening in back ... inches	10	10	12	12	16	15	15
Distance back from center of slide ... inches	6½	8½	7½	9½	10½	9½	12½
Standard stroke of slide (can be changed) ... inches	2	2	2	2	2	2½	2½
Adjustment of slide ... inches	3	3	3	3	3	3	3
Distance bed to bottom of slide, stroke and adj. up inches	9½	9½	11	11	13	12½	12½
Thickness of bolster plate ... inches	1¾	1¾	2	2	2½	2½	2½
Centers of bolt holes in slide flanges, R. to L. ... inches	8	8	9	9	9	10½	10½
Recess in slide for punch stem, round ... inches (square if desired)	1$\frac{9}{16}$	1$\frac{9}{16}$	2	2	2	2	2
Diameter and face of flywheel ... inches	32x5½	32x5½	36x5½	36x5½	36x5½	42x6½	42x6½
Weight of flywheel ... pounds	550	550	775	775	775	1050	1050
Speed of flywheel ... R. P. M.	100	100	90	90	90	90	90
Height from floor to center of shaft ... inches	64	64	68	68	72	72	72
Floor space over all, F. to B., R. to L. ... inches	42x40	42x40	50x44	50x44	54x44	58x44	62x44
Floor space of legs, F. to B., R. to L. ... inches	34x26	41x26	40x30	46x30	52x36	50x34	58x34
GEARED PRESS Code Word							
Price	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	3000	3250	4550	4700	6750	7100	7100
Proportion of gearing	6:1	6:1	6½:1	6½:1	6½:1	6½:1	6½:1
Diameter of gear ... inches	32	32	35	35	35	42	42
Size of balance wheel ... inches	28x4	28x4	30x5	30x5	30x5	32x5½	32x5½
Weight of balance wheel ... pounds	300	300	400	400	400	600	600
Size of belt wheel ... inches	28x4	28x4	30x5	30x5	30x5	32x5½	32x5½
Speed of belt wheel ... R. P. M.	330	330	330	330	330	290	290
Strokes of slide ... per minute	55	55	50	50	50	45	45
Floor space, F. to B., R. to L. ... inches	50x46	50x46	56x52	56x52	56x52	58x60	58x60

The "Toledo" Open Back Presses—With Fixed Legs, Upright or Inclined

Number of Press		77	77A	78	79	79½	79¾
Page of Catalogue		53	55	56	57	58	60
PLAIN PRESS							
Price, including bolster		$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	9600	9800	11800	17000	....	....
Area of bed, F. to B., R. to L.	inches	18x30	25x36	22x32	25x36	28x41	32x48
Standard opening in bed, F. to B., R. to L.	inches	10x20	18x24	13x22	12½x24	16x27	14x28
Diameter of intersecting circle	inches	12	21	16	18	20	20
Width of opening in back	inches	20	21	22	24	27	31
Distance back from center of slide	inches	8½	13	8½	8½	16½	12½
Standard stroke of slide (can be changed)	inches	2½	2½	2½	3	3	4
Adjustment of slide	inches	3	3	3	3	3	4
Distance bed to slide, stroke and adjustment up	inches	13	13	13	13	17	18
Thickness of bolster	inches	2½	2½	2½	2½	3	4
Recess in slide for punch stem, round or square	inches	2	2	2½	2½	3	3
Diameter and face of flywheel	inches	42x6½	42x6½	50x7	60x7½	....	....
Weight of flywheel	pounds	1050	1050	1350	2150	....	....
Speed of flywheel	R. P. M.	80	80	80	70	....	....
Height from floor to center of shaft	inches	76	76	81	83	98	101
Floor space over all, F. to B., R. to L.	inches	60x55	60x55	64x60	74x68	....	....
Floor space of legs, F. to B., R. to L.	inches	56x40	56x40	55x44	60x46	70x54	78x58
GEARED PRESS							
Price, including bolster		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	10800	11000	13500	19000	40000	47000
Proportion of gearing, about		7½:1	7½:1	7:1	7½:1	22:1	26:1
Diameter of gear	inches	49	49	54	62	62	74
Size of balance wheel	inches	38x6	38x6	42x6½	50x7	50x7	60x7
Weight of balance wheel	pounds	800	800	1000	1250	1250	1400
Size of belt wheel	inches	24x5	24x5	24x6	28x6	28x6	40x8
Speed of belt wheel	R. P. M.	275	275	275	225	375	375
Strokes of slide per minute		35	35	35	30	17	15
Floor space over all, F. to B., R. to L.	inches	70x64	70x64	77x70	92x84	102x100	112x116

Note—No. 79½ and 79¾ are double geared

The "Toledo" No. 74 Open Back Press



THE above illustrates our No. 74 Open Back Press on upright standards; can also be furnished on inclined standards if desired. It is also furnished with or without automatic knockout in slide.

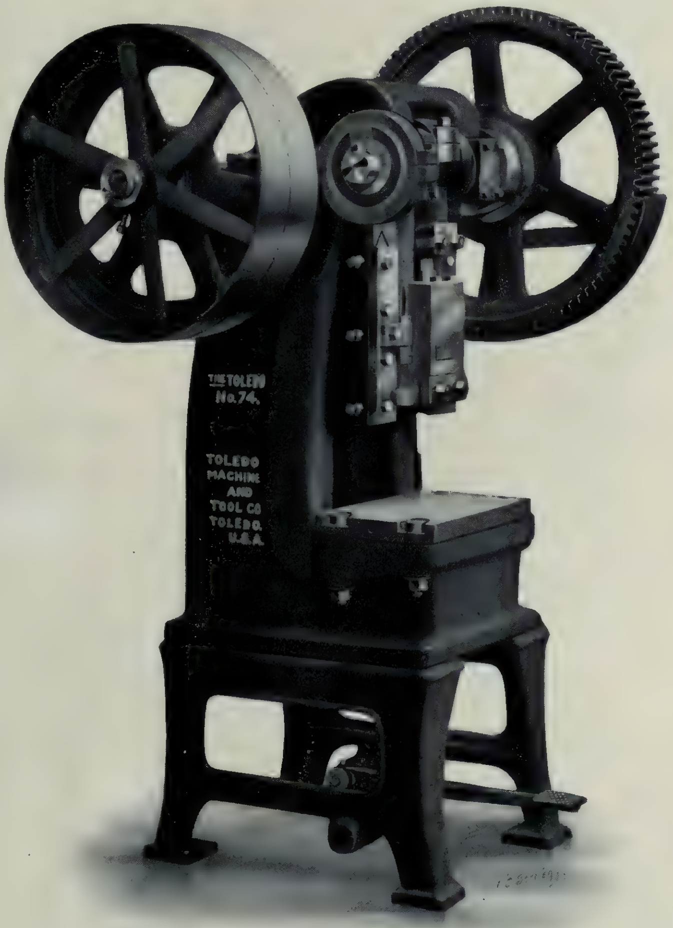
The open back feature permits the feeding of stock from right to left or from front to back.

An excellent Press for punching, shearing, perforating and forming automobile and agricultural implement parts; operating, cutting and forming dies for general sheet metal work; cutting, forming and embossing tops and bottoms of meat, varnish and petroleum cans in one or more operations. Total weight about 2,600 lbs.

Production estimates cheerfully furnished, from a specimen piece or drawing.

General description, page 41. Dimensions, page 42. Code Word..........

The "Toledo" No. 74 Open Back Press, Geared



WHERE a slow slide motion and long stroke are required for drawing, reducing and forming ferrules, grease-cups and a wide range of similar work, this geared type of Press, as shown in illustration, is preferable.

Furnished with upright or inclined standards as desired. Total weight about 3,000 lbs.

Further details cheerfully furnished on application.

General description, page 41. Dimensions, page 42. Code Word...........

The "Toledo" No. 75 Open Back Press on Inclined Standards.

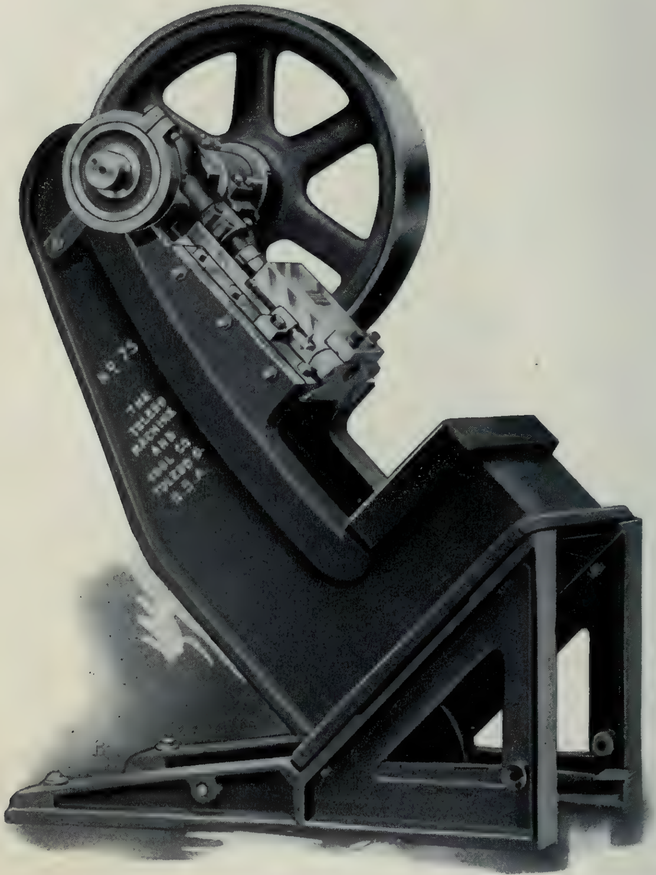
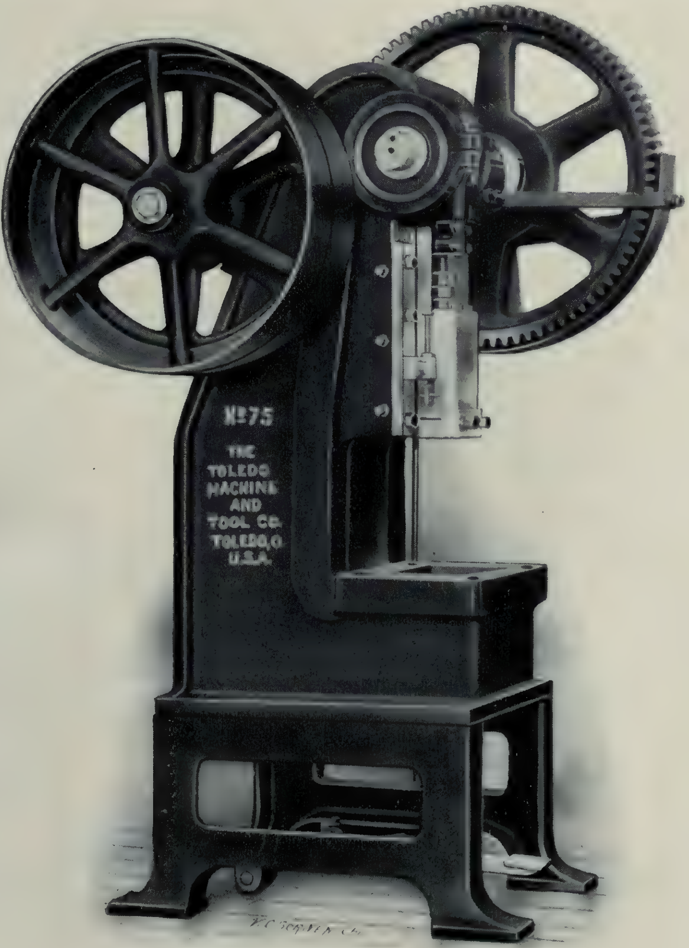


ILLUSTRATION as above, represents the general style and appearance of our No. 75 Open Back Press, mounted on inclined standards and with large die space or distance bed to slide; these features being provided for the finishing of deep stamped and enameled ware. Total weight about 4,050 lbs.

General description, page 41. Dimensions, page 42. Code Word............

The "Toledo" No. 75 Open Back Press, Geared



THIS illustration represents our No. 75 Geared Press on upright standards, and arranged with long stroke. Press is adapted to deep forming and reducing on stamped and enameled ware, to trimming and cutting out bottoms of deep shells, and to a wide range of work as specified on page 41.

When specially ordered, this Press is fitted with tie rods for specially heavy work. Total weight about 4,550 lbs.

Efficiency of this Press unequaled for work as intended.

General description, page 41. Dimensions, page 42. Code Word............

The "Toledo" No. 75-A Open Back Power Press

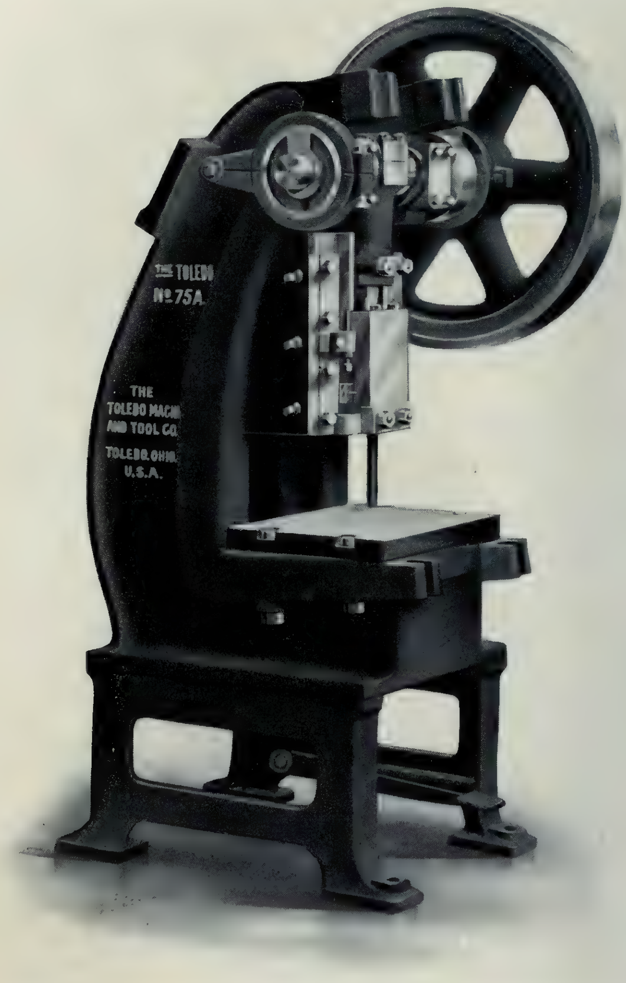
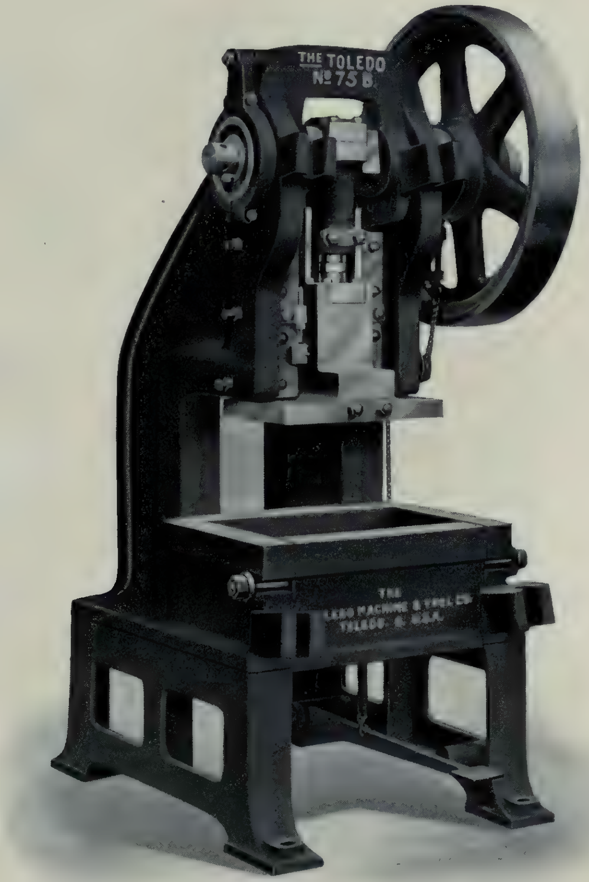


ILLUSTRATION as above, shows a Press with deeper gap, greater bed area, and of correspondingly heavier pattern than those shown on preceding pages; is fitted with automatic knockout, has increased die space and bed area, and arranged as here shown for attaching tie rods when operating on specially heavy work.

Bed area of Press is 18 inches front to back and 23 inches right to left. Total weight about 4,200 lbs.

General description, page 41. Dimensions, page 42. Code Word...........

The "Toledo" No. 75-B Open Back Press



THE open removable front, as illustration shows, adapts this Press to operating wiring and other dies which require extra high die space. This Press is also adapted to blanking, perforating and forming operations on parts of steel cabinets, office furniture, pieced tinware, etc. Total weight about 4,850 lbs.

General description, page 41. Dimensions, page 42. Code Word............

The "Toledo" No. 76 Open Back Press

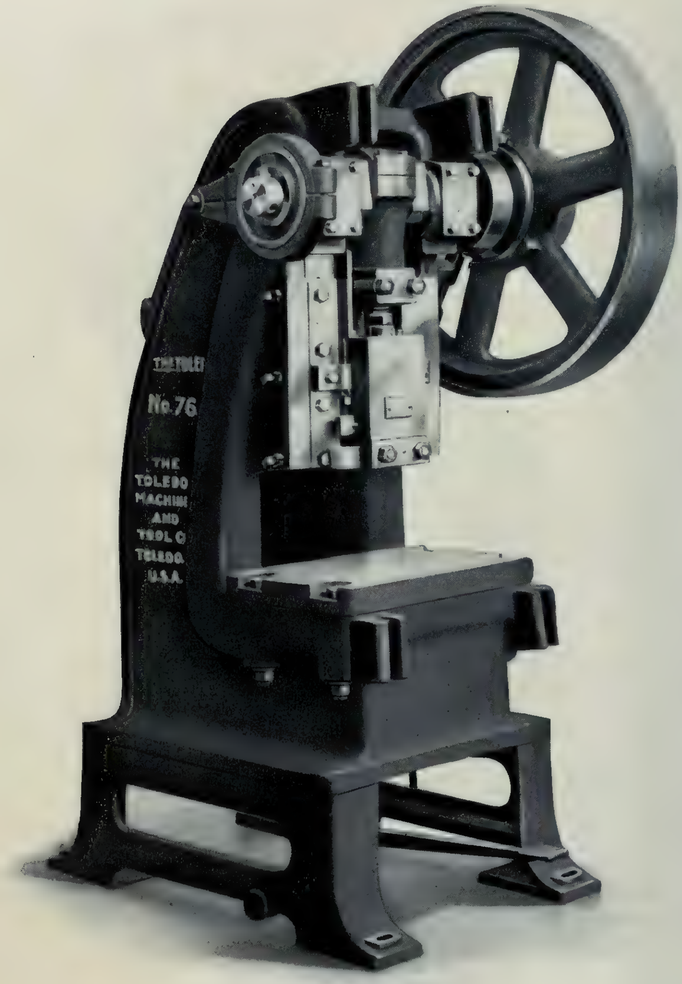
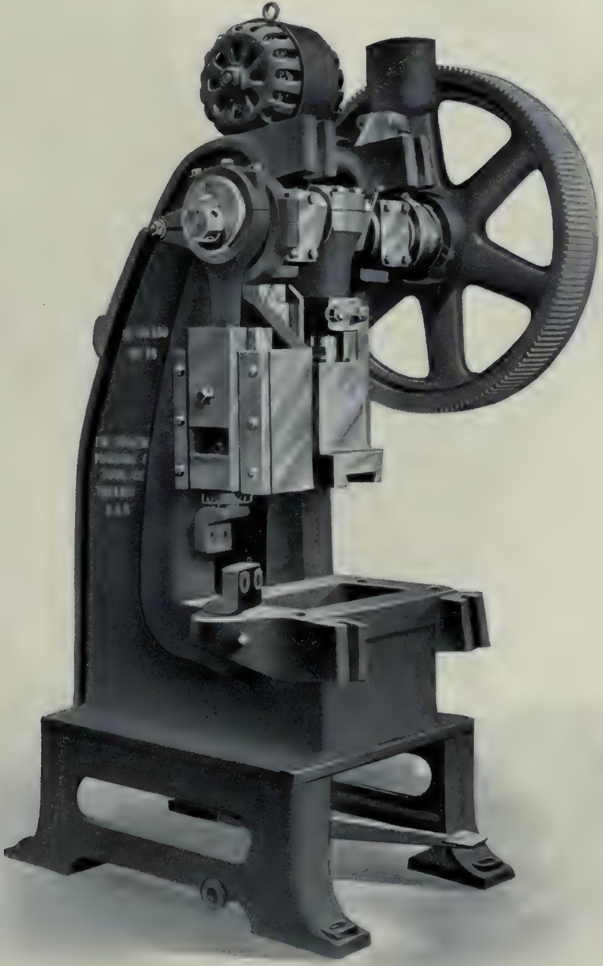


ILLUSTRATION shows a Press adapted to a wide range of work on strap and butt hinges, stove parts, automobile parts, electrical fittings, etc., and is used extensively for various punching, shearing, perforating and forming operations in the manufacture of spring clips and other automobile parts. Total weight about 6,050 lbs.

General description, page 41. Dimensions, page 42. Code Word...........

The "Toledo" No. 76 Open Back Press Motor Driven and Fitted with Outer Trimming Slide



THE accompanying illustration shows our new, heavy pattern, No. 76 Press, fitted with our new form outer trimming or cut-off slide, with adjustable upper and lower holders.

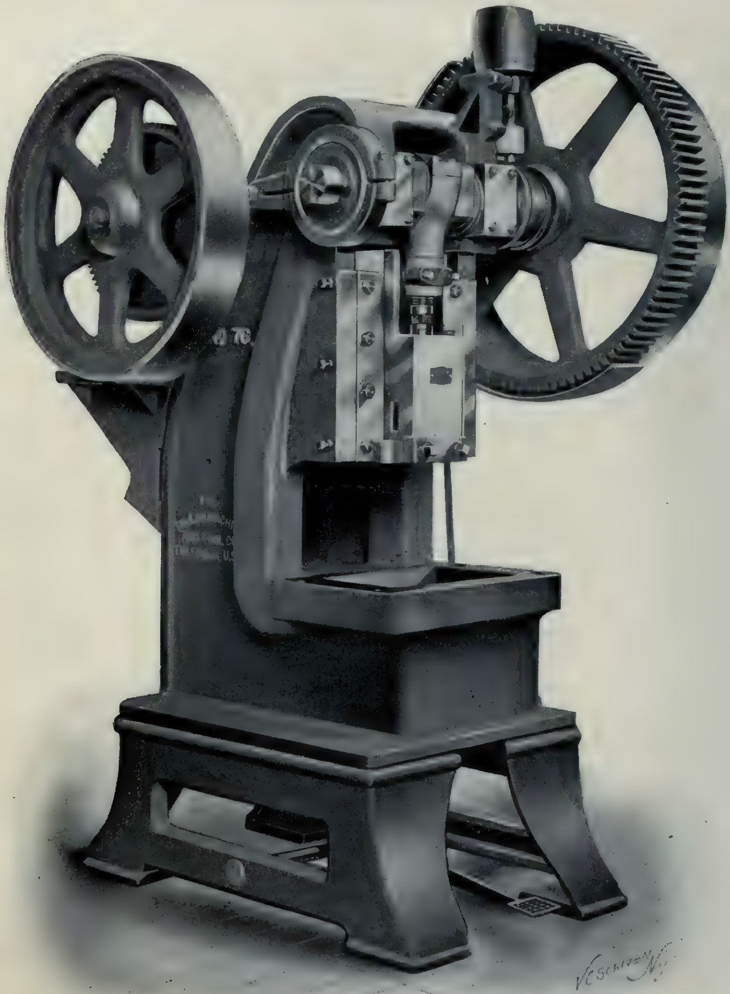
The illustration also shows a convenient, compact form of direct-connected motor-drive.

This Press is widely used in the manufacture of cutlery, hardware, implement and electrical parts, and a wide range of light forging trimming work.

The Press is also adapted for heavy blanking and forming work, on stamped metal parts, in connection with which work the outer slide can be used for cutting off or perforating work, particularly bar stock.

General description, page 41. Dimensions, page 42 Code Word...........

The "Toledo" No. 76 Open Back Press, Geared Fitted for Motor Drive

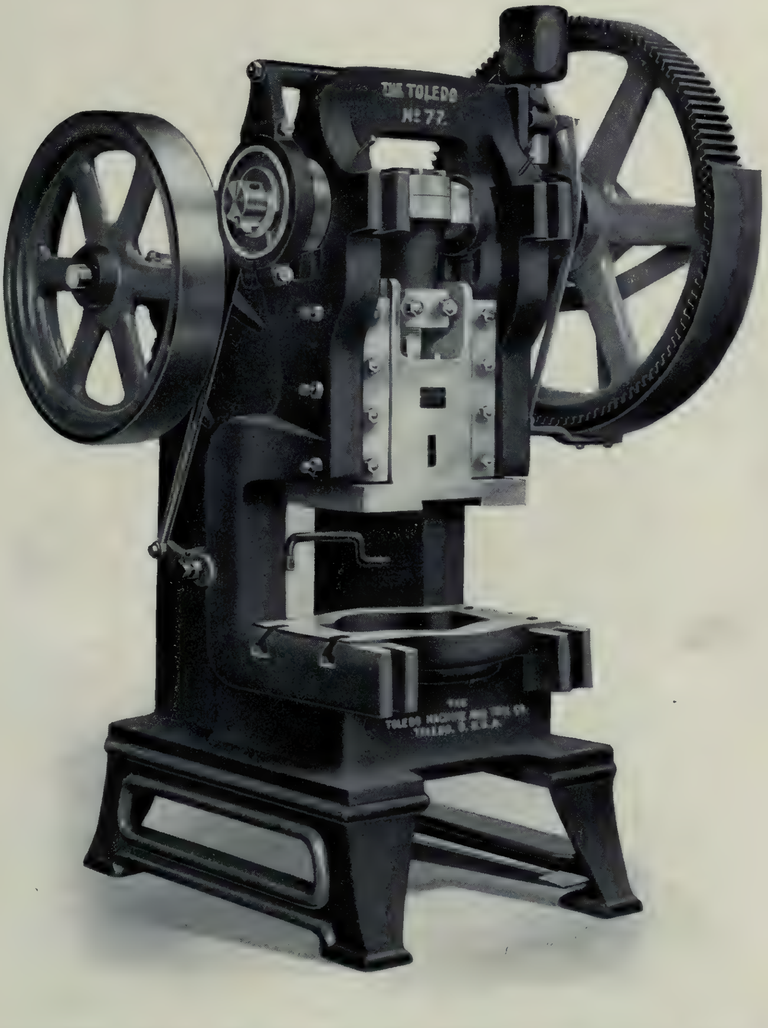


THIS Press, as illustrated, is fitted for both the slower, powerfully geared as well as the non-geared or plain direct belt drive, and is very popular with manufacturers having both light and heavy work to be done on one press; this feature is obtained by attaching, to the larger gear, a belt rim so that Press can be run as a geared machine or as a quick-acting, flywheel press; the back shaft being extended so that main driving pinion can be readily disengaged when Press is operated without the gearing.

The motor for direct-connected motor-drive is rigidly supported in the rear by a heavy iron bracket. Total weight about 7,100 lbs.

General description, page 41. Dimensions, page 42. Code Word..........

The "Toledo" No. 77 Open Back Press, Geared



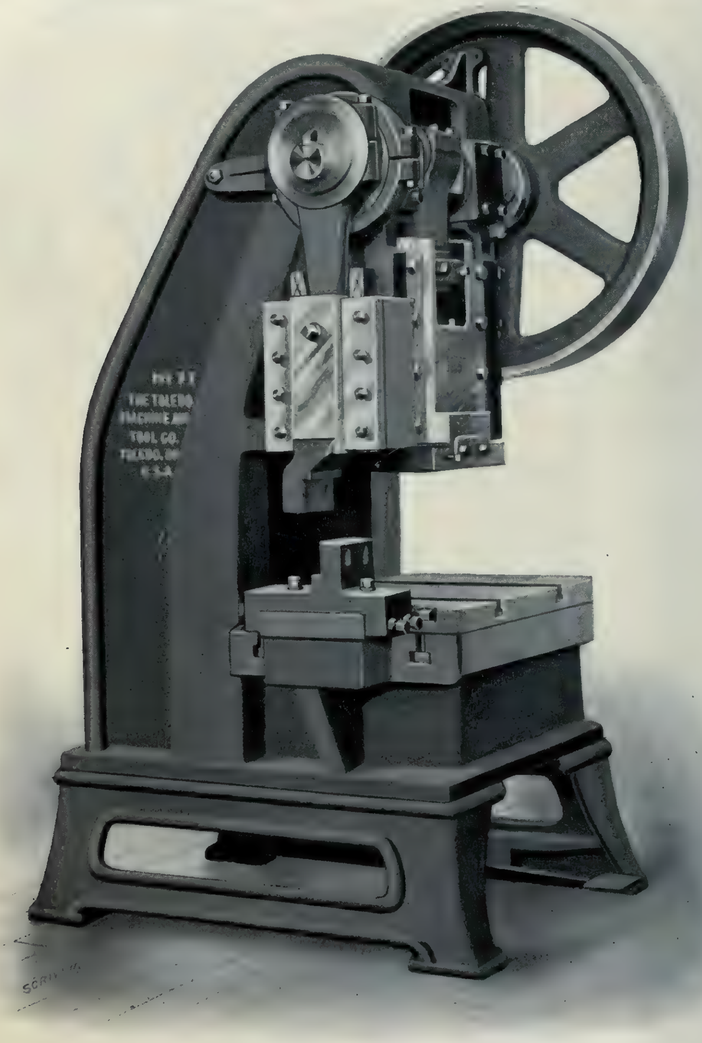
THIS heavy pattern, single crank, gap blanking and forming Press, while particularly designed and recommended for heavy blanking is also adapted to a wide range of forming and perforating operations on parts of cream separators, steel wheels, electrical cut-out boxes, telephone and other electrical parts, etc.

This Press is also extensively used for trimming drop forgings. The frame is provided with lugs for receiving tie rods when operating on extra heavy work.

When specially ordered, we can furnish any of these Presses with cam-actuated finger gauge attachment as shown above, which not only facilitates, but also insures a more economical feeding of stock. Total weight about 10,800 lbs.

General description, page 41. Dimensions, page 43. Code Word............

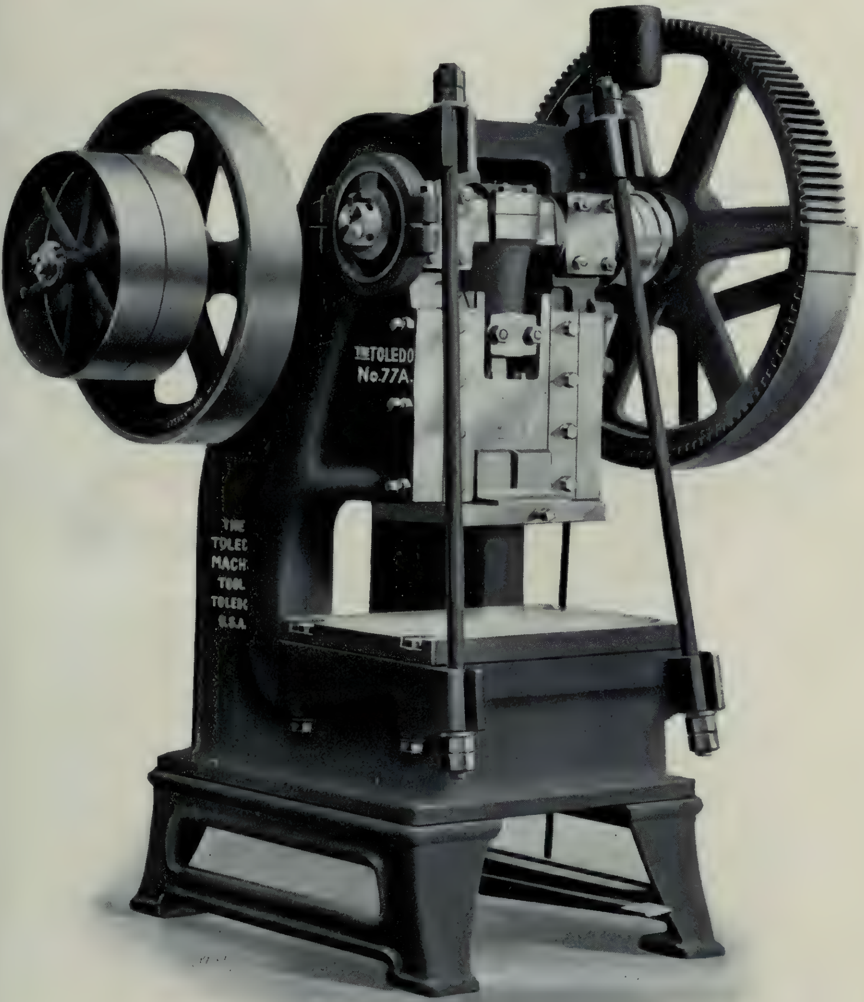
The "Toledo" No. 77 Open Back Press
With Outer Slide for Shearing and Cut-off Tools



FOR trimming drop forgings and cutting and shearing off bars, this type of Press, as illustrated above, is particularly convenient and recommended. When desired the outer slide can be arranged for blanking or punching, the two slides permitting the use, in combination, of a double set of dies for performing two operations in the trimming and punching of hot or cold work. Total weight about 9,600 lbs.

General description, page 41. Dimensions, page 43. Code Word...........

The “Toledo” No. 77-A Open Back Press, Geared

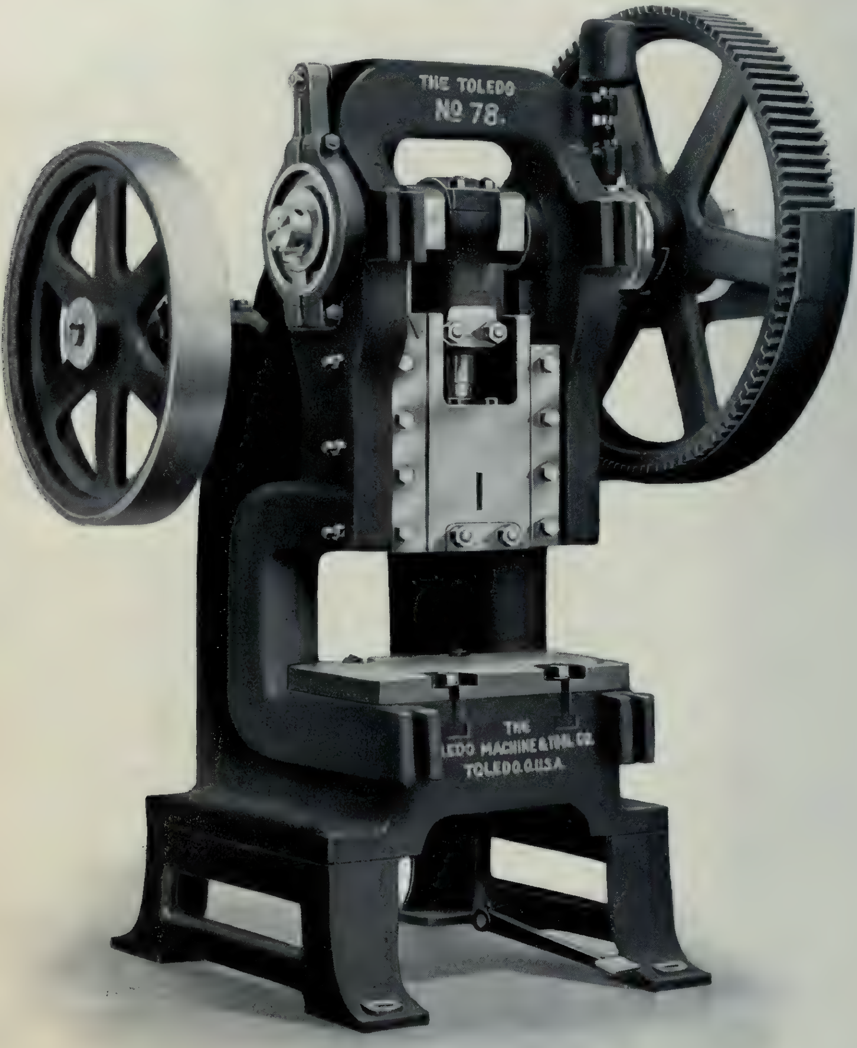


THE above illustrates a Press similar in design to No. 77, described on a preceding page, but with deeper gap, greater bed area and correspondingly heavier construction, adapting this size press to a wider range of blanking and forming work than can be handled on the standard No. 77. Our No. 77-A Press is extensively used by manufacturers of steel ranges, agricultural implements and automobiles.

This Press is also arranged for receiving tie rods when operating on extra heavy work. Total weight about 11,000 lbs.

General description, page 41. Dimensions, page 43. Code Word...........

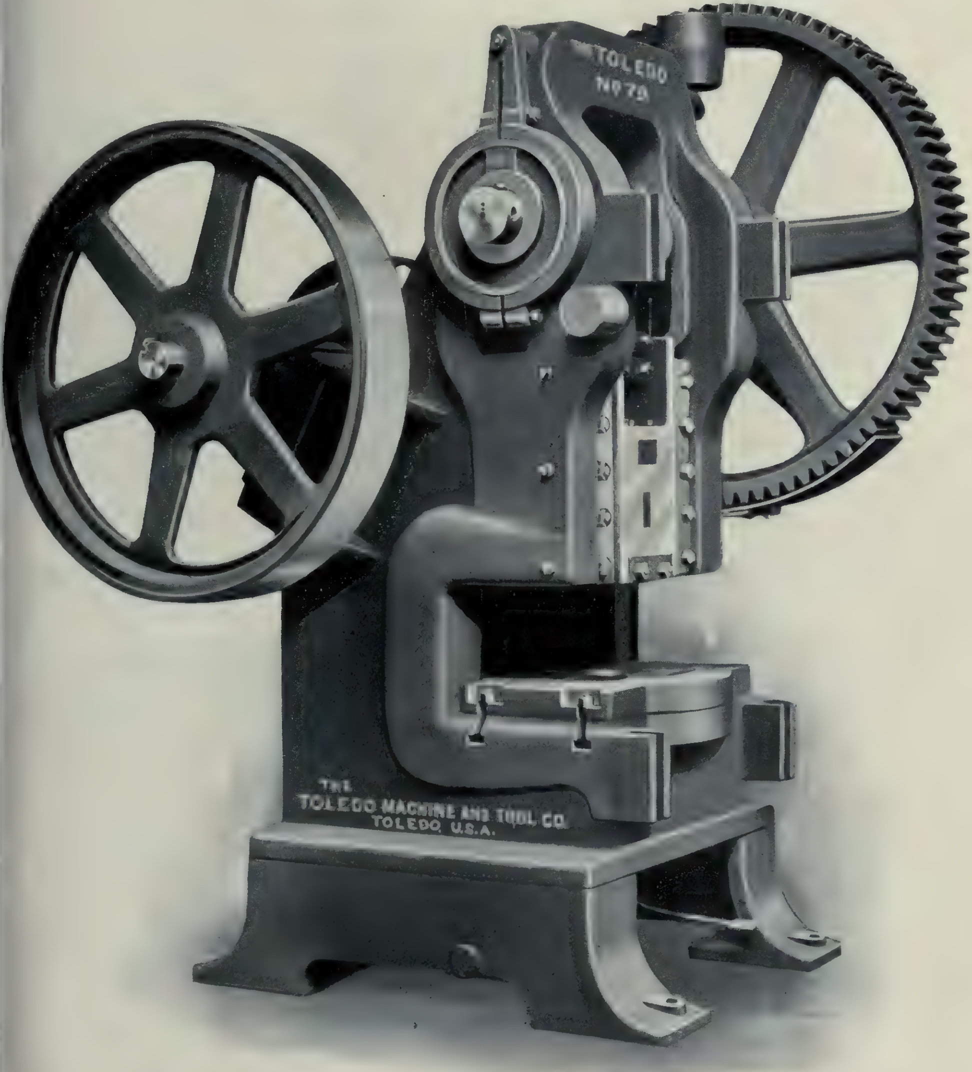
The "Toledo" No. 78 Open Back Press, Geared



THIS new, heavy pattern, Open Back Press, as shown in illustration above, is designed and excellently adapted for various blanking, forming, and reducing operations on cream separator shells, heavy electrical cut-out boxes, differential covers, axle housings, and other automobile parts, as well as for trimming drop forgings. Total weight about 13,500 lbs.

General description, page 41. Dimensions, page 43. Code Word...........

The "Toledo" No. 79 Open Back Press, Geared

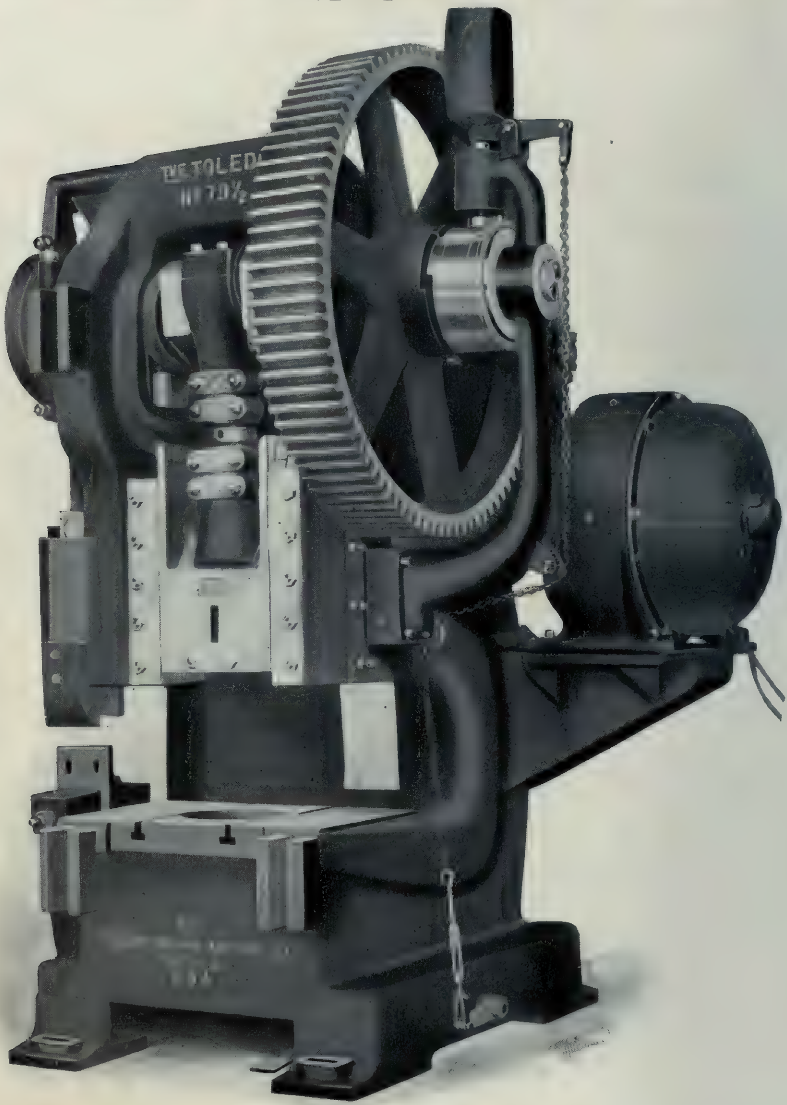


THIS new design of heavy Open Back Press, as illustrated above, is used most satisfactorily for cutting large blanks of heavy plate, gang perforating, forming, embossing, drawing and reducing on stampings used in auto parts, builders' hardware, electrical appliances and a wide range of similar work.

Press can be fitted for direct-connected motor-drive, if desired, and is also arranged so that tie rods can be inserted where extra heavy embossing and forming are required. Total weight about 19,000 lbs.

General description, page 41. Dimensions, page 43. Code Word............

The "Toledo" No. 79½ Open Back Press, Geared



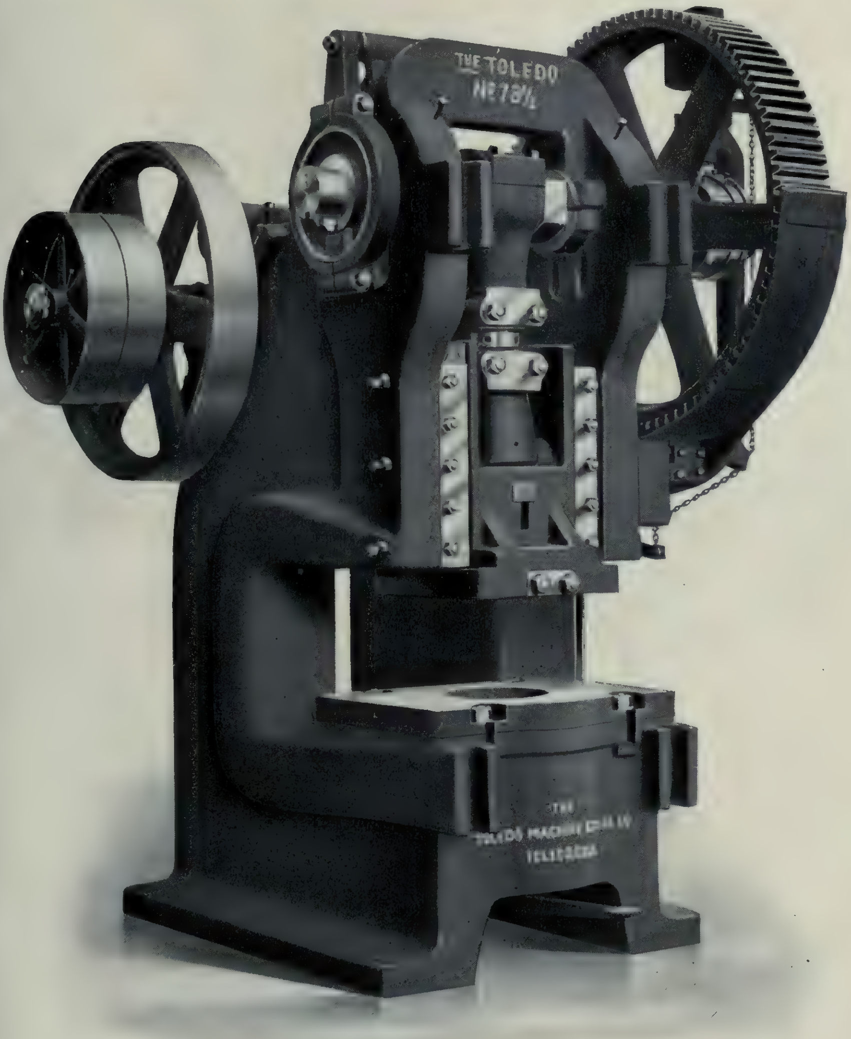
THE above illustration shows a motor-driven Press especially designed and adapted for unusually heavy blanking, shearing and trimming. It can be furnished as shown, with outer cut-off or shearing slide or without this attachment, as desired.

With this attachment Press is very efficient for shearing and trimming large forgings, hot or cold bars and other work.

These Presses are very popular at the U. S. Navy Yards and with many other users of "Toledo" Forging Trimming Presses. Total weight about 40,000 lbs.

General description, page 41. Dimensions, page 43. Code Word............

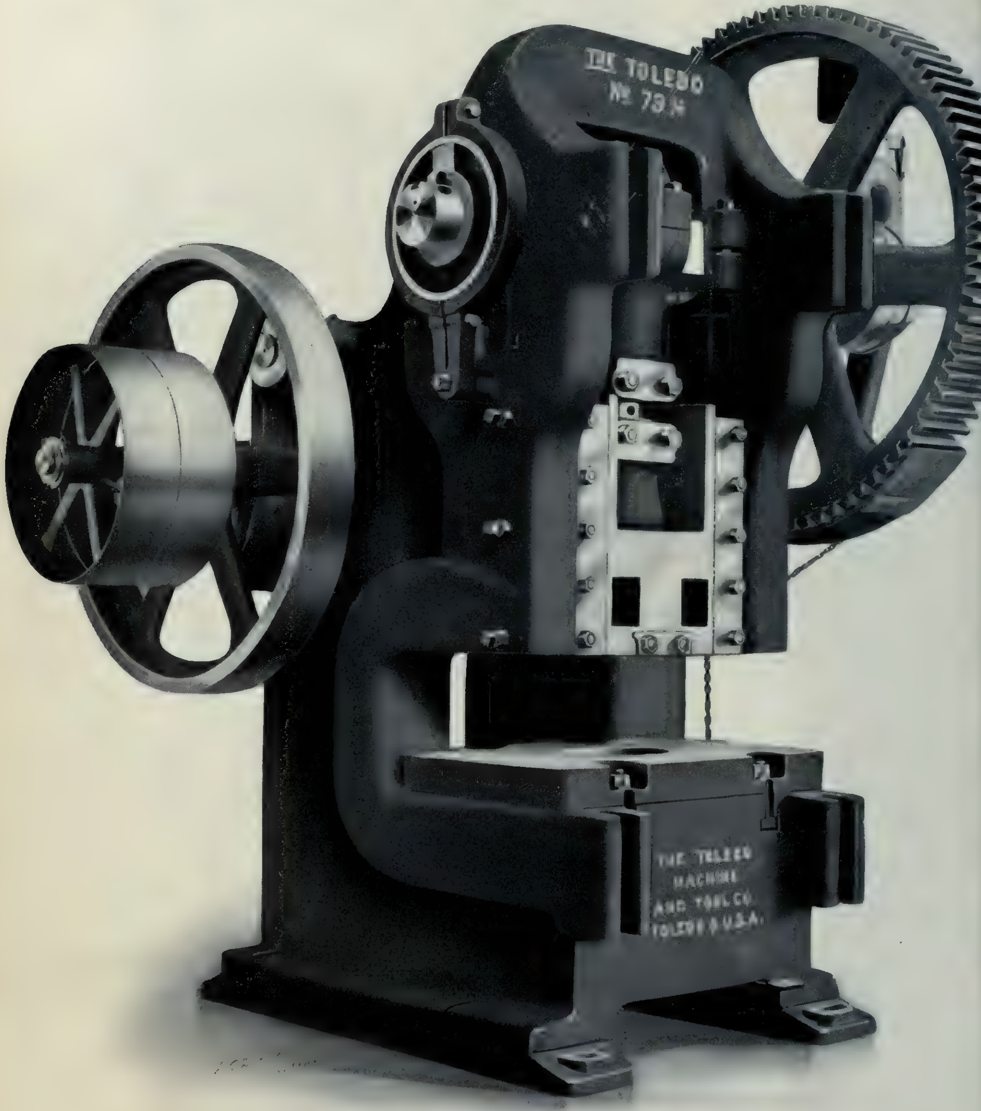
The "Toledo" No. 79½ Open Back Press, Geared



THIS large size Press, as shown above, is designed and adapted to heavy blanking and forming work on brake drums, hub flanges and similar work. With dies properly sheared, will cut blanks of large diameter of plate as heavy as ⅜ inch to ½ inch thick. It is also adapted to trimming drop forgings. Total weight about 40,000 lbs.

General description, page 41. Dimensions, page 43. Code Word............

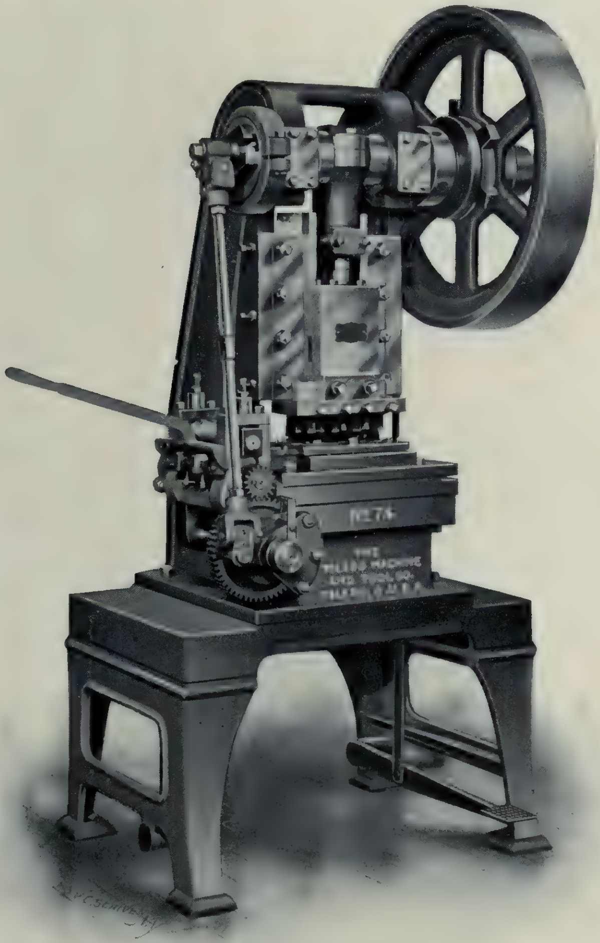
The "Toledo" No. 79¾ Open Back Press, Geared



THE above Press is of massive construction, and is designed and adapted for heavy blanking and a wide range of operations on wheel hub flanges, brake drums, automobile parts and other heavy stampings. Total weight about 47,000 lbs.

General description, page 41. Dimensions, page 43. Code Word............

The “Toledo” No. 74 Open Back Press With Automatic Single Roll Feed Attachment



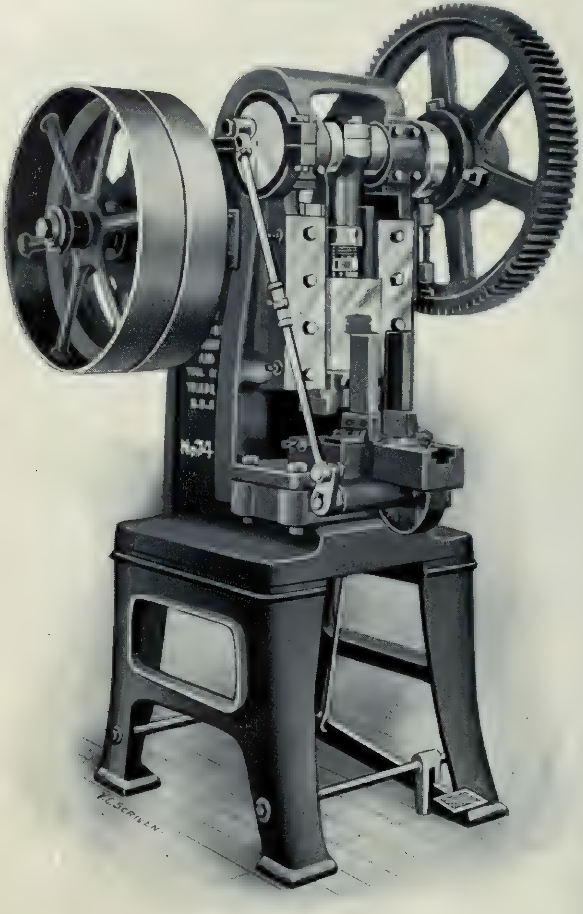
THIS Press, as shown in the above illustration, has widened base standards, and is fitted with automatic single roll feeding attachment operating in connection with multiple blanking dies.

The automatic feed is compound geared, having a maximum movement of nearly 10 inches and is especially suited to multiple gang die-work on fence clips, bale ties, small lock parts, show-case shelving and similar work. Total weight about 2,900 lbs.

General description, page 41. Dimensions, page 42. Code Word............

The "Toledo" No. 74 (Old No. 75) Open Back Press Geared, with Hopper Feed

(Patented)



THE Automatic Slide Feed with Hopper Attachment, as employed on this Press, particularly adapts it to a wide range of punching and forming, as the work can be stacked in the hopper, and the feeding attachment carries it forward to the dies and automatically ejects same from the machine when finished.

With this attachment it is possible for an operator to produce three to four times more work than can be produced with a plain, "hand-fed" press and dies. Equipped as above described, this Press is particularly adapted for producing washers, lock nuts, trade checks and other work in large quantities. Total weight about 3,300 lbs.

General description, page 41. Dimensions, page 42. Code Word...........

Description Automatic Feeds, page...........

The "Toledo" Blanking, Forming, Horning and Wiring Presses

Nos. 12, 13, 14 and 14½.

OUR Ear Riveting Attachment, usually fitted to the No. 12 Press, is almost indispensable to manuafcturers of pieced tin and stamped ware. This attachment, of our latest design, is simple in construction, requiring one stroke only for drawing and at the same time heading the rivets. It is easily possible to rivet from 35 to 40 gross of ears per day on pails and similar work.

Our Duplex Seam Folding and Closing Attachment is a new design of simple construction with an adjustment provided for a variation in width of seam. This attachment is made to fit Nos. 12, 13 and 14 Presses and to accommodate seams up to and including 20 inches long.

These Presses are also fitted for receiving a detachable bed or knee, which can be fitted with or without the hand wheel screw adjustment.

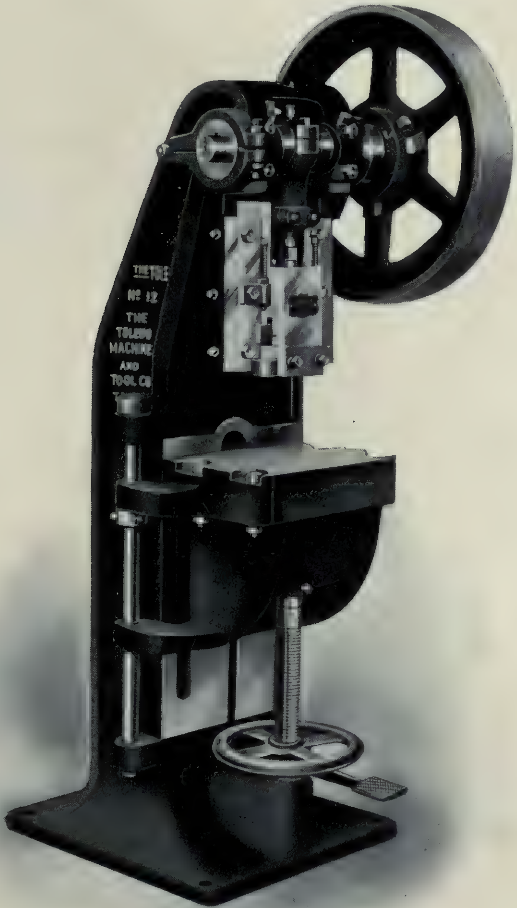
The swinging attachment to these beds is an original "Toledo" feature, enabling customers to use the Presses for blanking, forming and wiring, as well as for seam closing and riveting.

Blanking, perforating and forming dies ordinarily require the regular standard stroke only. When Press is intended for operating wiring dies this work should be specified in order that machine may be furnished with a longer stroke.

The "Toledo" Blanking, Forming, Horning and Wiring Presses

Number of Press		12	13	14	14½
Old Number		65-67	68	....	....
Page of Catalogue		65	70	72	....
PLAIN PRESS	Code Word				
Price, bored for horn only		$.....	$.....	$.....	$.....
Price extra for detachable bed		$.....	$.....	$.....	$.....
Price extra for screw adjustment for bed		$.....	$.....	$.....	$.....
Price extra for wiring bolster plate		$.....	$.....	$.....	$.....
Price extra for swinging knee		$.....	$.....	$.....	$.....
Weight with swinging knee or bed	pounds	1800	2800	4400	6800
Distance back from center of slide	inches	6	8	10	10
Standard distance bed to slide, stroke and adjustment up	inches	7	8	9½	10
Maximum distance bed to slide, stroke and adjustment up	inches	16	18	20	22
Stroke of slide (can be changed)	inches	1½	1½	2	2½
Adjustment of slide	inches	2	2½	3	3
Bolt hole centers in slide flange R. to L.	inches	5½	6½	8	9
Recess in slide for punch stem (round or square)	inches	1 9/16	1 9/16	1 9/16	2
Size of hole in frame for horn, diameter and length	inches	3⅛x10¼	3½x12½	3½x15	4½x19
Standard opening in bed, F. to B., R. to L. (can be changed)	inches	6x10	8x10	10x12	10x13
Area of bed and bolster plate, F. to B., R. to L. (can be changed)	inches	11x16	15x18	17x20	18x23
Thickness of bolster plate	inches	1⅜	1½	1¾	2
Diameter and face of flywheel	inches	24x3½	28x4	32x5½	36x5½
Weight of flywheel	pounds	250	350	550	775
Speed of flywheel	R. P. M.	100	100	100	90
Height from floor to center of shaft	inches	56	66	73	80
Floor space over all, F. to B., R. to L.	inches	37x28	42x32	48x38	55x42
Floor space of base, F. to B., R. to L.	inches	26x22	30x26	33x28	41x34
Will close seams up to (length)	inches	12	16	17	19
Will close seams up to (diameter)	inches	24	28	32	34
Will wire up to (diameter and length)	inches	10x12	12x14	16x16	16x18
Distance floor to center of horn	inches	32	38	40	46
GEARED PRESS	Code Word				
Price		$.....	$.....	$.....	$.....
Weight, about	pounds	....	3200	4900	7400
For dimensions of gearing see Press No.		....	3	4	5
Floor space over all, F. to B., R. to L.	inches	....	44x42	52x46	56x52

The "TOLEDO" No. 12 Horning and Wiring Press

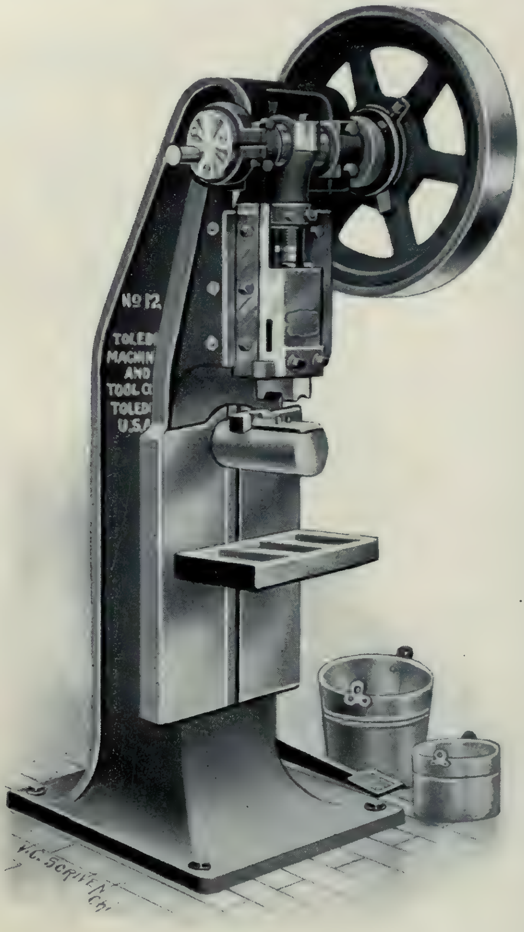


THE Detachable Swinging Bed or Knee fitted with Hand Wheel Screw Adjustment, as shown on Press illustrated above, allows the use of special fixtures and dies for clinching, wiring and seaming, as well as dies for the regular classes of blanking, perforating and forming.

This Press is widely used in the manufacture of pieced tinware, steel boxes, head-lights, gas and electrical fixtures, cream separators, etc. Total weight about 1,800 lbs.

General description, page 63. Dimensions, page 64. Code Word............

The "Toledo" No. 12 Press With Ear Riveting Attachment



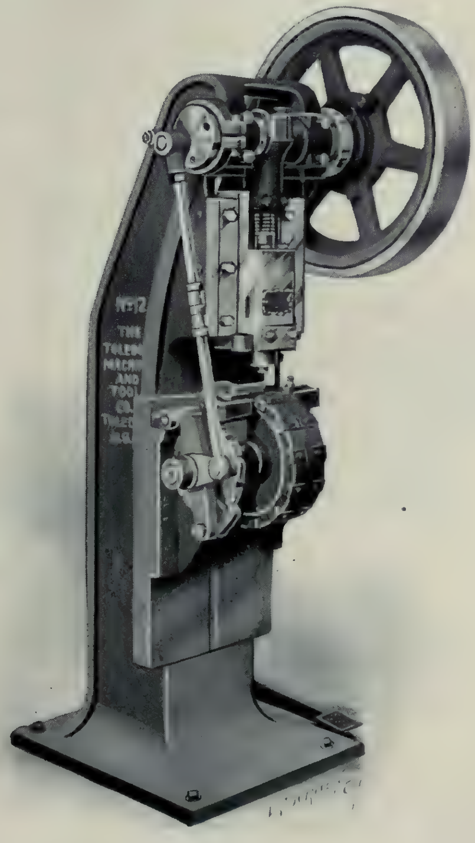
EAR Riveting Press No. 12 is designed for riveting ears to pails, covered buckets, dripping pans, etc. The rivet heads are placed in receptacles provided for them; the body of pail or article to be riveted is then placed in position above the rivets, against stop pins properly placed, while the ear is placed over this, fitting into receptacles provided for same. The first movement of slide forces rivets through the body and ear holes; the body then, with ear attached, is drawn forward and again brought up against stop pins, when slide is allowed to come down a second time, completing the rivet.

Skillful operators have riveted both ears on from 14 to 16 gross of small pails per day with one of these Presses. Total weight about 1,800 lbs.

General description, page 63. Dimensions, page 64
Code Word, bored for horn only...........
Code Word, as shown complete............

The "Toledo" No. 12 Press

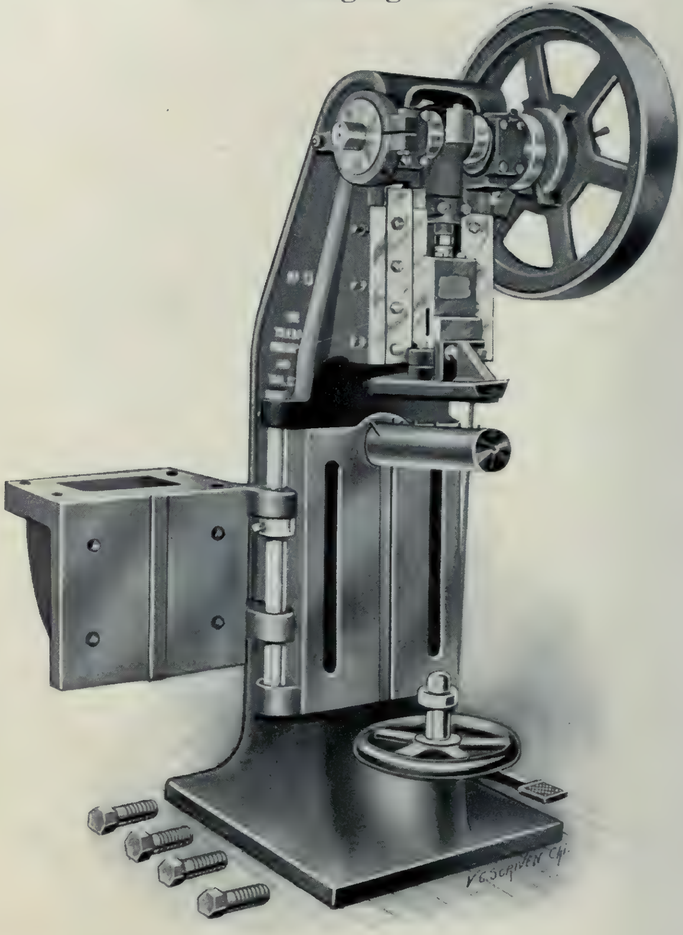
With Automatic Feed for Riveting



OUR No. 12 Press with Automatic Feeding Attachment for swaging and riveting, as illustrated above, is adapted to swaging, riveting, upsetting, broaching, trimming, etc., and is particularly useful for such work as swaging spindles, pins, shade-roller fixtures, hardware specialties and similar articles. Total weight about 1,800 lbs.

General description, page 63. Dimensions, page 64. Code Word............

The "Toledo" No. 13 Horning and Riveting Press With Swinging Knee

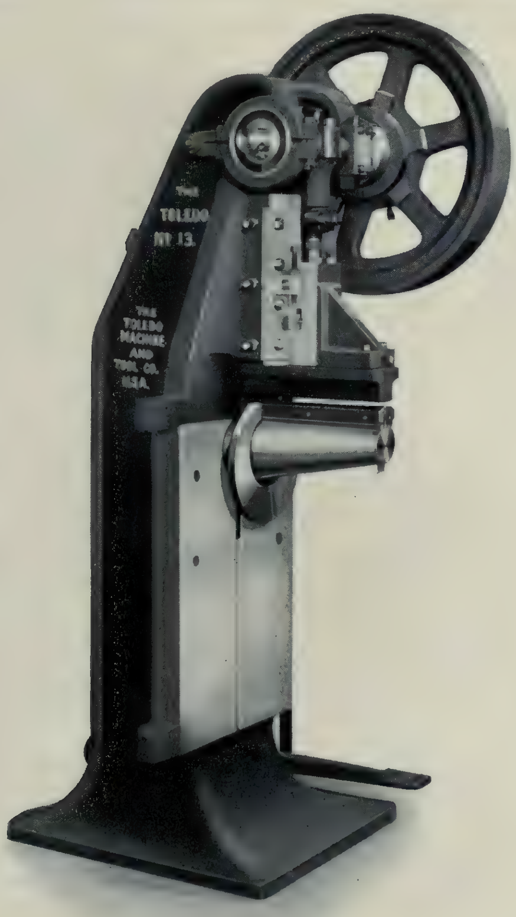

V.E.SCRIVEN Chi.

A SPECIAL feature of Press as illustrated above, with swinging knee with screw adjustment, and horning fixture for seam-closing, is that it can be used for blanking, forming, wiring, riveting, seam-closing or bumping, making a most practical Press for general work on pieced tin and stamped ware. By means of the screw adjustment, the bed can be easily and quickly adjusted to any desired height to suit the dies. Bed can be easily and quickly detached and swung out of position and horning tools placed in position, or *vice versa,* as desired.

Press is also furnished with frame drilled for receiving detachable bed in one or more positions, and with the hand wheel, elevating screw and support omitted entirely wherever desired. Total weight about 2,800 lbs.

General description, page 63. Dimensions, page 64
Code Word for press as shown............
Code Word, bored for horn only...........

The "Toledo" No. 13 Duplex Folding and Seaming Press

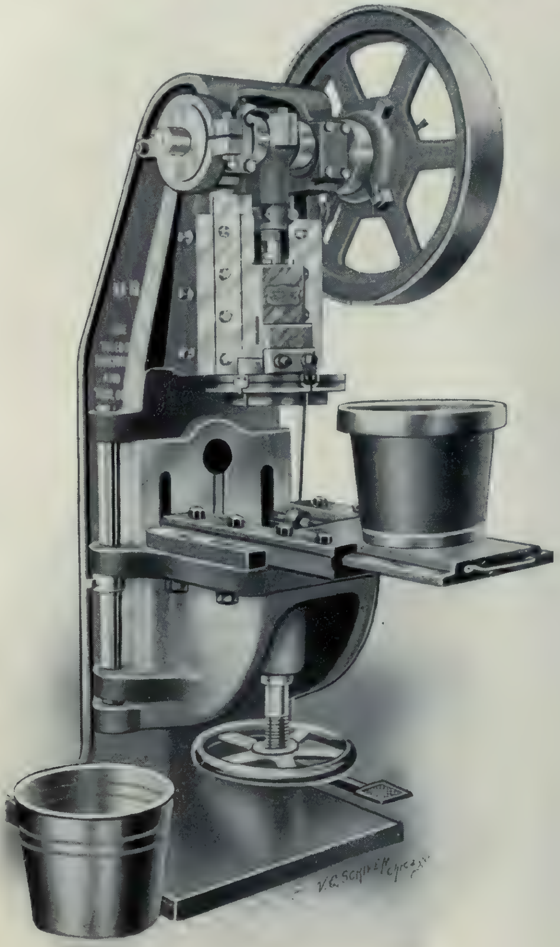


THE "Toledo" new patented Duplex Folding and Seaming Attachment, as shown attached to Press No. 13, is designed for the manufacture of lock-seamed pieced tin, black iron and similar wares. It folds the two hooks for the seam at one stroke and closes same in the second stroke in the one handling or operation. Among the many advantages of this particular folding and seam-closing attachment is the detachable folding edges (inexpensive to repair) and the adjustment provided for a wide or narrow seam or a deeper edge or fold for same. These features alone warrant our assertion of this being the most practical, as well as economical seaming attachment in use.

The attachment can be arranged for a flush seam inside or outside, or both as desired. Total weight about 2,800 lbs.

General description, page 63. Dimensions, page 64
Code Word for Press, as shown...........

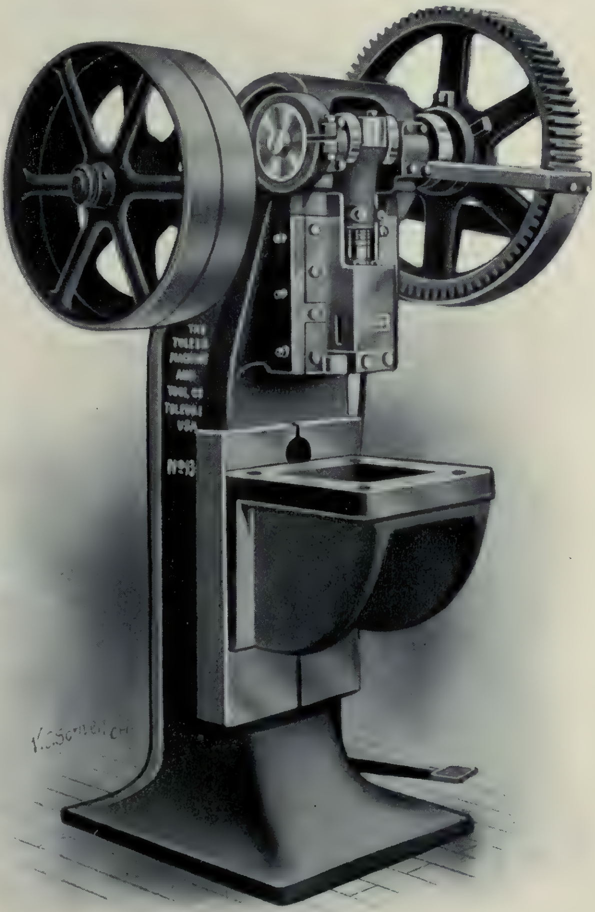
The "Toledo" No. 13 Horning and Wiring Press



ON these Presses the sliding plate to which wiring die is attached can be easily and quickly removed, and a standard bolster or bed plate mounted in its place for regular work. The knee is easily and quickly swung out of the way when horning tools are to be operated; with this style knee, Press is adaptable to a large line of work, such as operating cutting dies, combination cutting and drawing dies, and also operating side-seam closing and horning attachments. In addition to the style shown we also furnish, when desired, at a slight advance in price, our improved roller bearing frame, the most practical and easy-operating attachment in use for sliding dies. Both styles of sliding plates are fitted with an automatic locking attachment to prevent the Press being started until the dies are in correct position. Total weight about 2,800 lbs.

General description, page 63. Dimensions, page 64. Code Word...........

The "Toledo" No. 13 Horning and Wiring Press
Geared, with Detachable Bed

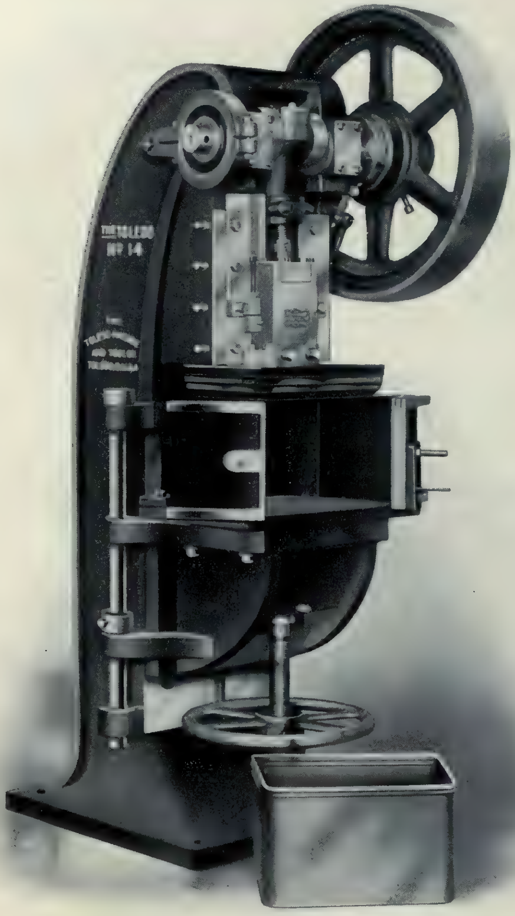

THE TOLEDO MACHINE AND TOOL CO TOLEDO USA
Nº13

NUMBER 13 Press, Geared, with bed, as shown above, is adapted to a general line of blanking, forming and broaching. It is specially suited for use in the manufacture of automobile parts, brass beds, steel furniture, wrenches, tools and a similar line of work; also for punching and forming telephone switchboard parts and electrical work.

The feature of the detachable bed in no way impairs the capacity of the Press but gives the added advantage of being removable, permitting the substitution of horns or other fixtures for special work. Total weight about 3,150 lbs.

General description, page 63. Dimensions, page 64
Code Word, bored for horn only.............
Code Word, with bed as shown...............

The "Toledo" No. 14 Special Press

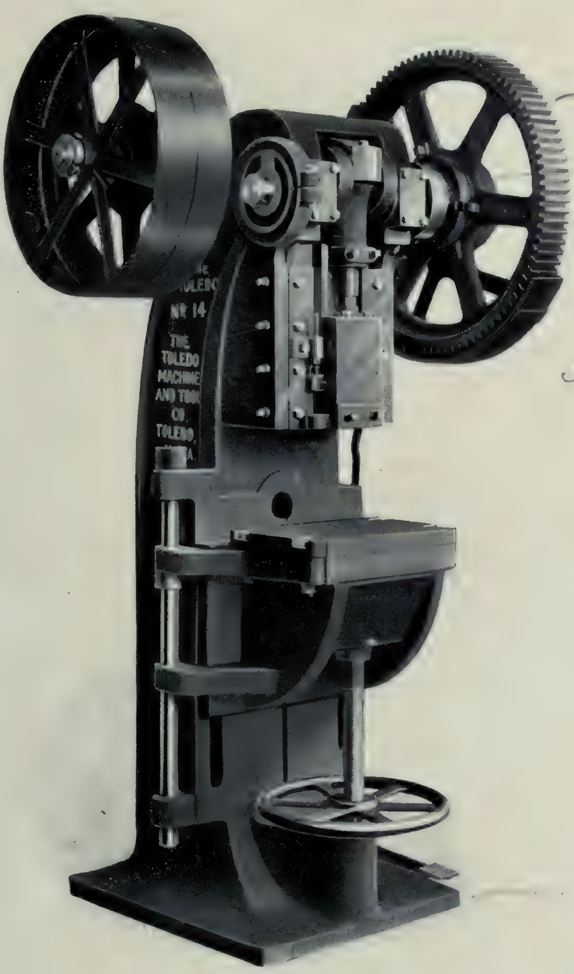


WITH the fixtures, as illustrated above, the No. 14 Press can be used in connection with dies for wiring, clinching, beading or forming bread or cracker tins, bottle and packing cases; also suited for operating wiring dies for large pails, milk, ash or garbage cans and similar work.

With these special fixtures removed, the Press is also adapted and widely used for operating dies for blanking, perforating, forming, embossing and riveting steel wheels and pulleys, auto lamps, radiators and other auto parts, enameled ware, furnace pipes, registers, etc. Total weight about 4,400 lbs.

General description, page 63. Dimensions, page 64. Code Word...........

The "TOLEDO" No. 14 Horning and Wiring Press, Geared



32 r.p.m

4400 #

THIS Press, as illustrated above, is shown with a detachable swinging knee fitted with hand wheel screw adjustment. It has an unusually long stroke or slide motion, and is very efficient for broaching vise and wrench parts, for perforating, embossing and lettering clincher and demountable rims, for deep forming work, etc.

We are also furnishing this Press with base flange shortened to back of slide center in front, doing away entirely with hand wheel support and attachments. In this form it is fitted for riveting automobile frames, also for cold swaging, perforating, trimming and other operations on automobile rims, radiators and similar work. Total weight about 4,900 lbs.

General description, page 63. Dimensions, page 64. Code Word...........

The "Toledo" Long Stroke Wiring Presses

Nos. 114, 115, 115½, 116.

THE illustrations on the following pages show the new type of "Toledo" Long Stroke Presses, designed to eliminate the slow, laborious and expensive operation of sliding plates or dies formerly used for wiring, curling or flanging.

These Presses will take in work from the smallest sizes of pans, pails and steel kegs or packages for white lead, paint and other materials, up to and including the largest sizes of wash tubs and similar articles.

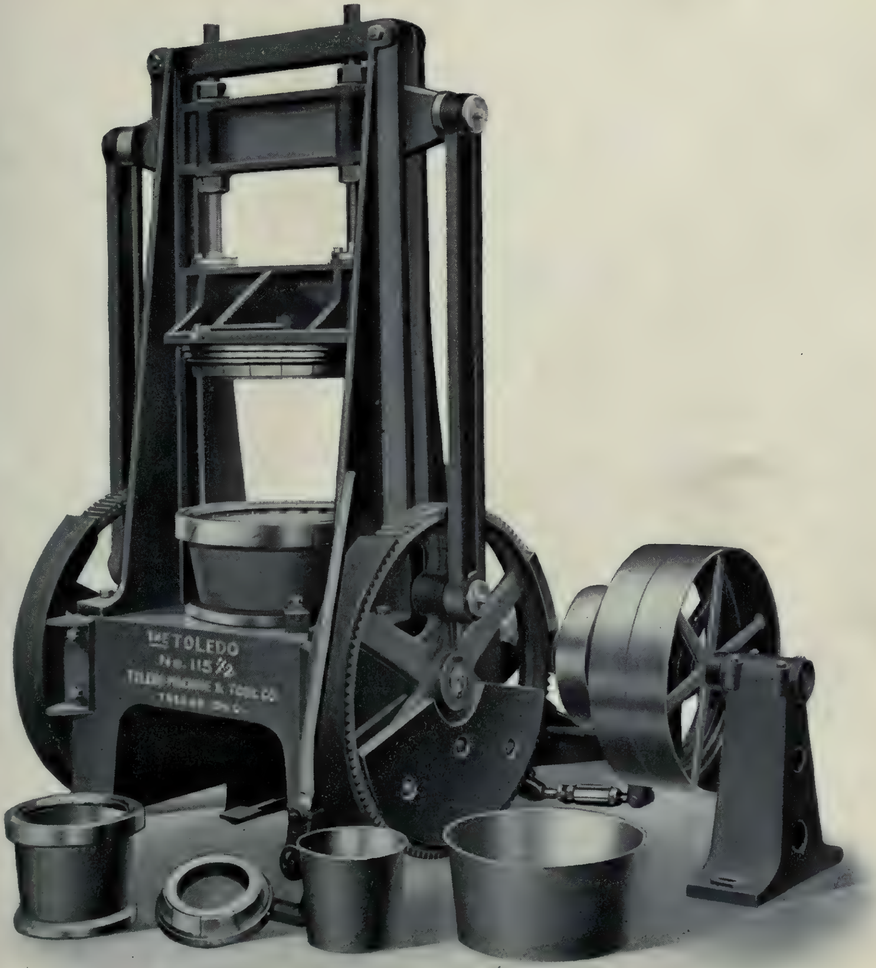
Stroke or slide motion is sufficient to raise the punch or upper die high enough to permit placing the work in position on the lower die. When the work is completed, it is removed *without handling the die,* thus more than doubling, in a given length of time, the output of the old method.

Provided with "Toledo" Friction Clutch—or, on the smaller sizes, when ordered, "Toledo" Three-Engagement Automatic Block Clutch with gravity release or control.

THE "TOLEDO" LONG STROKE WIRING PRESSES

Number of Press	114	114½	115	115½	116
Old Number		115		115-A	
Page of Catalogue				75	76
Price	$....	$....	$....	$....	$....
Code Word					
Weight, about ...pounds	3700	5800	6700	7200	13500
Will wire up to diameter...inches	15	20	24	28	26
Will wire up to depth...inches	11	11	14	16-18	23
Distance bed to slide, stroke down and adjustment up...inches	14	14	17	19-21	26
Distance between gibs...inches	20	25	28	32	30
Area of bed, F. to B., R. to L...inches	16x20	24x24	30x30	32x32	32x32
Stroke of slide...inches	14	16	18	18-20	26
Adjustment of slide...inches	8	8	10	14	14
Diameter of slide flange, round...inches	16	22	29	29	28
Size of balance wheel...inches	26x3½	28x4½	28x4½	30x5	32x5½
Weight of balance wheel...pounds	300	400	400	450	550
Size of belt wheel...inches	26x3½	28x4½	28x4½	30x5	32x5½
Speed of belt wheel...R. P. M.	210	225	225	225	225
Proportion of gear...	7:1	9:1	9:1	9:1	10:1
Strokes of slide, per minute...	30	25	25	25	25
Height over all, stroke up...inches	80	100	104	112	126
Size at base, F. to B., R. to L...inches	28x30	38x38	38x48	48x44	44x44
Floor space over all, F. to B., R. to L...inches	30x70	50x70	56x90	62x90	67x140

The "Toledo" No. 115½ Straight Sided Wiring Press

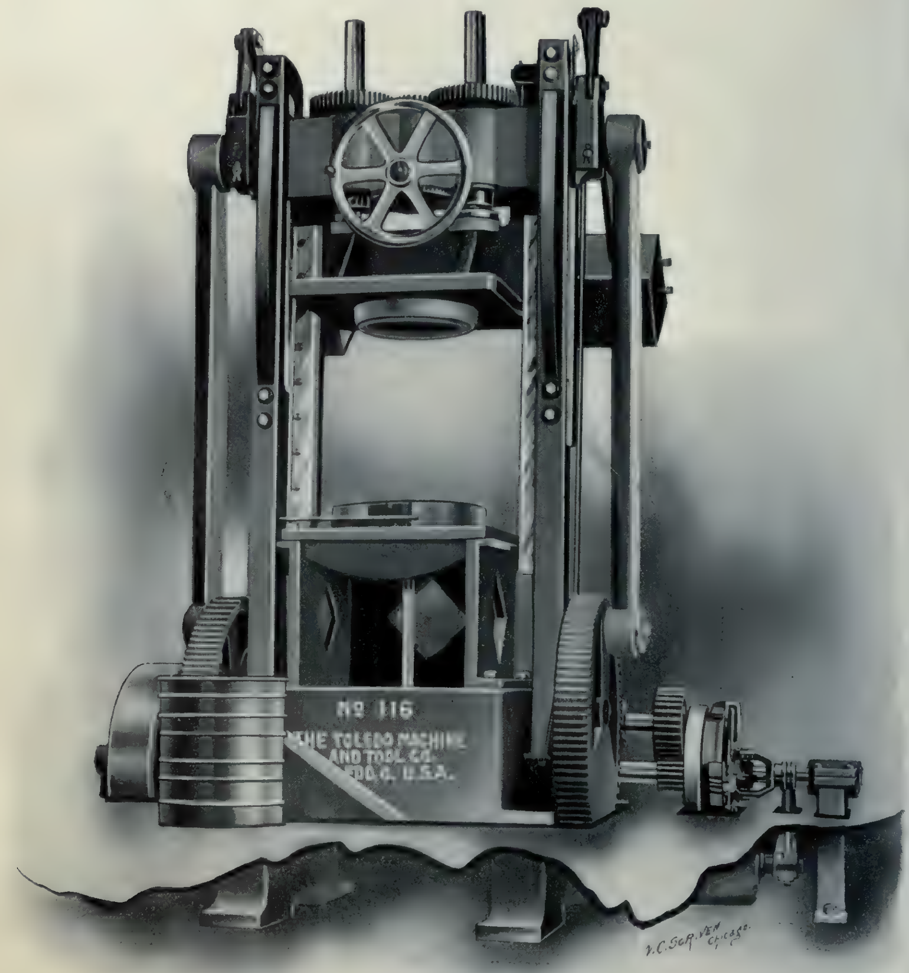


THE accompanying illustration shows one of our new, heavy pattern, medium size Presses, fitted with dies for wiring wash tubs, dairy pails and similar work.

The Press No. 115½ has a distance of 32 inches between uprights, and bed area of 32 inches x 32 inches; will wire work up to and including 28 inches diameter by 18 inches deep, and is especially suited for wiring wash tubs, boilers and similar receptacles; also for flanging ash and garbage cans, wiring steel boxes and other metal packages. Total weight about 7,300 lbs.

General description, page 74. Dimensions, page 74. Code Word...........

The "Toledo" No. 116 Straight Sided Wiring Press



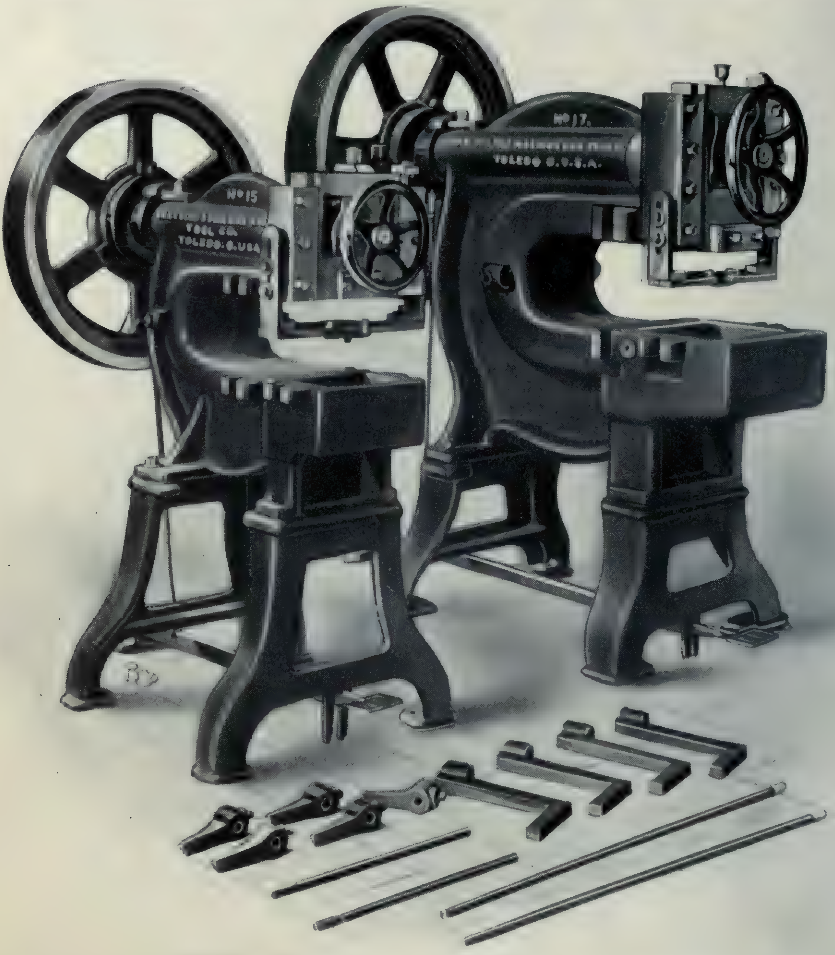
THE illustration above shows our heavy, powerful, long-stroke wiring and forming Press No. 116, which is adapted to wiring and finishing the top edges of steel barrels, bottle cases and other metal packages in round, square or other shapes, with capacity in steel or other metals as heavy as number 15 or 16-gauge. Total weight about 13,500 lbs.

General description, page 74. Dimensions, page 74. Code Word...........

The "Toledo" Deep Gap Punching Presses

Number of Press		15	17	19
Page of Catalogue		78	79	
PLAIN PRESS				
Price, including bolster		$......	$......	$......
Price of extra bolster		$......	$......	$......
Weight, about	pounds	1400	3600	6900
Area of bed, F. to B., R. to L.	inches	8¼ x 14¾	15 x 23	20 x 27
Standard opening in bed, F. to B., R. to L.	inches	5 x 8	10 x 12	14 x 16
Distance back from center of slide	inches	18	20	24
Standard stroke of slide	inches	1	1¼	1½
Adjustment of slide	inches	1	1	1
Distance bed to slide, stroke and adjustment up	inches	6½	8½	10
Thickness of bolster	inches	1¼	2½	2½
Shaft diameter	inches	3¼	4	5½
Recess in slide, diameter and depth	inches	1 9/16 x 2¼	2 x 2¾	2 x 2¾
Diameter and face of flywheel	inches	28 x 4	34x 5½	42 x 6½
Weight of flywheel	pounds	350	650	1050
Speed of flywheel	R. P. M.	100	80	80
Height from floor to center of shaft	inches	43	50	56
Floor space over all, F. to B., R. to L.	inches	43 x 28	60 x 34	82 x 38
Floor space of base, F. to B., R. to L.	inches	24 x 26	33x30	44 x35
GEARED PRESS				
Price		$......	$......	$......
Weight, about	pounds	1650	4000	6900
Proportion of gearing, about		5:1	5½:1	6:1
Diameter of gear	inches	25	32	35
Size of balance wheel	inches	24 x 3½	28 x 4	30 x 5
Weight of balance wheel	pounds	200	300	400
Size of belt wheel	inches	24x 3½	28 x 4	30 x 5
Speed of belt wheel	P. P. M.	225	250	270
Strokes of slide, per minute		45	45	45
Floor space over all, F. to B., R. to L.	inches	48 x 26	62 x 32	94 x 38
Punching capacity	inches	9/16 x ⅜	¾ x ⅝	⅞ x ⅞
Shearing capacity, round bar	inches	¾	1¼	1½
Shearing capacity, flat bar	inches	2 x ⅜	3 x ⅝	4 x ¾

The "Toledo" Nos. 15 and 17 Deep Gap Punching Presses



THESE Presses, as illustrated above, are designed and used for range-boiler, wrought iron range, automobile, and various classes of work where it is required to punch holes at a distance from the edges of wide sheets. Built in various sizes and with depth of throat to suit requirements. Adjustable for dies of different heights, and furnished geared or without gearing as ordered.

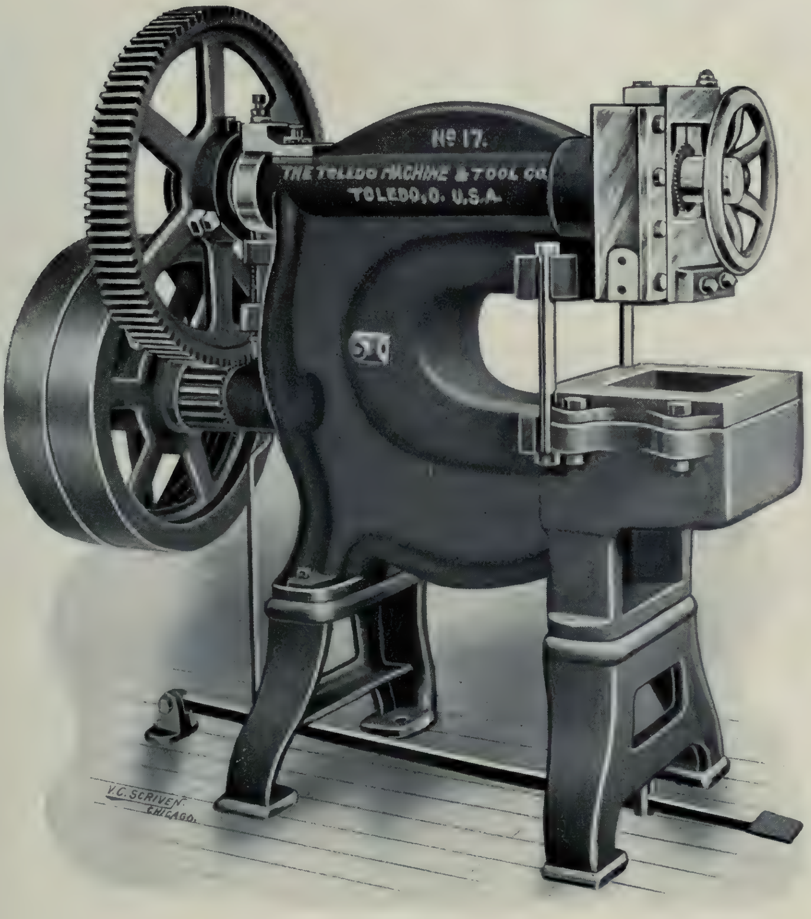
The No. 15 Press is more particularly intended for operating the "horse-shoe" gauge system for multiple perforating with single dies. It can however be used for cutting clean-out and other small openings, punching, perforating, etc.

No. 17 Press has capacity for cutting medium and small sized openings, cutting and flanging 7-inch stove pipe openings, and other openings not exceeding 10 x 12 inches, in sheets as heavy as No. 16 gauge.

Used in connection with our well known horse-shoe gauge system and for a variety of blanking, perforating and forming operations. Total weight No. 15 (plain) about 1,500 lbs. No. 17 (plain) about 3,600 lbs.

Dimensions, page 77. Code Word............

The "TOLEDO" No. 17 Deep Gap Punching Press, Geared


Nº 17.
THE TOLEDO MACHINE & TOOL CO.
TOLEDO, O. U.S.A.
V.C. SCRIVEN
CHICAGO.

THIS Press, as shown above, is adapted and used for a line of wide work where the stock is unusually heavy; for kitchen boiler work, sheet iron ranges, piercing and forming band and angle iron into various forms, perforating rivet and bolt holes, and cutting other openings in wide sheets in the manufacture of automobile and steel range work.

Furnished with tools, when ordered, for slitting, shearing, cutting off or punching. Total weight about 4,000 lbs.

Dimensions, page 77. Code Word............

The "Toledo" Punching Presses

Nos. 30, 31, 31½, 32, 32-S, 33, 33-S, 34, 34-S, 35, 35-S and 36.

THE "Toledo" Punching Presses are extensively used for an endless variety of work, being specially suited for punching, shearing, and cutting out blanks of heavy metal, steel, iron, brass, etc.; for operating trimming and forming dies used in the manufacture of automobiles, motor cycles, bicycles, cutlery, sewing machine, typewriter, lock, agricultural implements, electrical and switchboard parts, and numerous other articles formed from bar and sheet metal.

The general design of these Punching and Shearing Presses is such as to combine rigidity, strength, and compactness, thus making them particularly suited for heavy work. They are well built, and up to the highest standard for machines of this class.

The crank shafts are made of high carbon hammered steel, with inserted bronze bushings for crank and shaft bearings.

The eccentric adjustment, which is operated by pinion wrench, insures a rapid, accurate adjustment for all classes of work.

The eccentric and connection are of steel casting, the eccentric being securely held on connection by a grip screw at top of connection or pitman.

Eccentric bearing, in connection, is unusually wide and carefully scraped and fitted and, by means of the powerful grip screw at top, sufficient friction is obtained to insure positive control and tightening of the adjustment for the heaviest classes of work.

The automatic pin clutch, used on these Presses, is of simple construction and very durable. It is impossible for this clutch to engage after the shaft has been moved 15 degrees past the stopping point or to within 15 degrees of the stopping point. This feature of our pin clutch insures safety to the operator and is a great convenience in setting dies, as it is not necessary to throw the belt off the clutch wheel. For details of clutch and further description, see page 10.

A treadle lock is provided, when necessary, which is instantly set by foot of operator, to keep Press in constant motion. It is used also to guard against accidental starting of Press.

The die space is an important feature, as the extra height between bed and slide allows the use of higher dies than can be used on most presses of this type.

"T" slots are placed directly back of bottom of slide ways to which special strippers, gauges, etc., may be clamped.

The "Toledo" Punching Presses

Number of Press		30	31	31½	32	32-S	33	33-S
Page of Catalogue		83	84	85	86		87	89
PLAIN PRESS								
Price, including bolster		$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster		$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	600	1325	1900	2350	2550	3050	3250
Area of bed, F. to B., R. to L.	inches	8 x 12	10 x 15	12 x 20	12 x 18	12 x 18	14 x 19	14 x 19
Standard opening in bed, F. to B., R. to L.	inches	4 x 5½	5 x 8	6 x 12	6 x 9	6 x 9	7 x 10	7 x 10
Distance back from center of slide	inches	4	5½	6	6	6	7	7
Standard stroke of slide	inches	1¼	1½	2	1½	2	1½	2
Adjustment of slide	inches	¾	1	2½	1	2½	1	3
Distance bed to slide, stroke and adjustment up	inches	5	7½	9½	7½	10	8	8
Thickness of bolster	inches	1¼	1½	1½	1½	1½	1¾	1¾
Shaft diameter	inches	2¾	3¾	4½	4¼	5	5	5
Recess in slide, diameter and depth	inches	1 1/16x2¼	1 9/16x2¼	1 9/16x2¼	1 9/16x2½	1 9/16x2½	2 x 2½	2 x 2½
Diameter and face of flywheel	inches	18x3½	26 x 3½	32x5½	32 x 5½	32 x 5½	38 x 6	38 x 6
Weight of flywheel	pounds	150	300	550	550	550	850	850
Speed of flywheel	R. P. M.	125	100	100	100	100	90	90
Height from floor to center of shaft	inches	47	53	58	56	62	59	62
Floor space over all, F. to B., R. to L.	inches	32 x 20	32 x 26	38 x 32	36 x 32	39 x 32	42x 38	42 x 38
Floor space of base, F. to B., R. to L.	inches	32 x 20	26 x 22	26 x 28	30 x 28	30 x28	33 x 28	33 x 28
GEARED PRESS								
Price, including bolster		$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	......	1550	2200	2650	2850	3400	3650
Proportion of gearing, about		......	5:1	5½:1	5½:1	5½:1	5½:1	5½:1
Diameter of gear	inches	......	25	28	28	28	32	32
Size of balance wheel	inches	......	24x 3½	26 x 3½	26 x 3½	26 x 3½	28 x 4	28 x 4
Weight of balance wheel	pounds	......	175	225	225	225	300	300
Size of belt wheel	inches	......	24 x 3½	26 x 3½	26 x 3½	26 x 3½	28 x 4	28 x 4
Speed of belt wheel	R. P. M.	......	225	250	250	250	250	250
Strokes of slide, per minute		......	45	45	45	45	45	45
Floor space over all, F. to B., R. to L.	inches	......	40 x 26	44 x 28	44 x 28	46 x 28	50 x 32	50 x 32
Punching capacity	inches	¼ x ¼	9/16 x ⅜	⅝ x ½	11/16x½	11/16x½	¾ x ⅝	¾ x ⅝
Shearing capacity, round bar	inches	½	¾	⅞	1	1	1¼	1¼
Shearing capacity, flat bar	inches	1½ x ¼	2 x ⅜	2 x ½	2½ x ½	2½ x ½	3 x ⅝	3 x ⅝

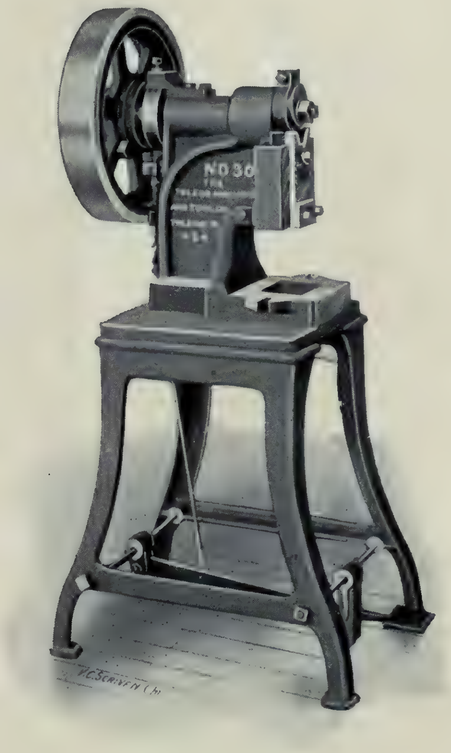
Presses Nos. 31½, 32-S, 33-S, have sleeve type of connection.

The "TOLEDO" Punching Presses

Number of Press	34	34-S	35	35-S	36
Page of Catalogue	91		93		95
PLAIN PRESS					
Price, including bolster	$.....	$.....	$.....	$.....	$.....
Price of extra bolster	$.....	$.....	$.....	$.....	$.....
Weight about ... pounds	4150	4250	7200	7700	11200
Area of bed, F. to B., R. to L. ... inches	14 x 20	14 x 20	17 x 26	17 x 26	21 x 28
Standard opening in bed, F. to B., R. to L. ... inches	8 x 11	8 x 11	11 x 15	11 x 15	12 x 17
Distance back from center of slide ... inches	7	7	10	10	10½
Standard stroke of slide ... inches	1½	2	1¾	2	2
Adjustment of slide ... inches	1	3	1	3	1
Distance bed to slide, stroke and adjustment up ... inches	9½	9½	10	10	11
Thickness of bolster ... inches	2	2	2½	2½	3
Shaft diameter ... inches	5½	5½	6½	6½	7½
Recess in slide (square), with depth ... inches	2 x 2¾	2 x 2¾	3 x 3	3 x 3	3 x 3½
Diameter and face of flywheel ... inches	42 x 6½	42 x 6½	50 x 7	50 x 7	50 x 7
Weight of flywheel ... pounds	1050	1050	1350	1350	1350
Speed of flywheel ... R. P. M.	90	90	80	80	70
Height from floor to center of shaft ... inches	64	64	65	65	70
Floor space over all, F. to B., R. to L. ... inches	48 x 42	48 x 42	54 x 50	54 x 50	65 x 50
Floor space of base, F. to B., R. to L. ... inches	38 x 32	38 x 32	44 x 34	44 x 34	50 x 36
GEARED PRESS					
Price, including bolster	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	4500	4600	7950	8450	12600
Proportion of gearing, about	6:1	6:1	6½:1	6½:1	7:1
Diameter of gear ... inches	35	35	42	42	54
Size of balance wheel ... inches	30 x 5	30 x 5	34 x 5½	34 x 5½	42 x 6½
Weight of balance wheel ... pounds	400	400	600	600	1000
Size of belt wheel ... inches	30 x 5	30 x 5	24 x 5	24 x 5	24 x 6
Speed of belt wheel ... R. P. M.	270	270	290	290	250
Strokes of slide, minutes	45	45	45	45	35
Floor space over all, F. to B., R. to L. ... inches	54 x 35	54 x 35	75 x 42	75 x 42	92 x 54
Punching capacity ... inches	⅞ x ⅞	⅞ x ⅞	1 x 1	1 x 1	1½ x 1
Shearing capacity, round bar ... inches	1½	1½	1¾	1¾	2
Shearing capacity, flat bar ... inches	4 x ¾	4 x ¾	4 x ⅞	4 x ⅞	5 x 1

The "Toledo" No. 30 Punching Press

(Old No. 25)



PUNCH Press No. 30 can be furnished either as a bench Press or on standards as shown. It is adapted to operating all kinds of light punching and cutting dies such as are used for producing the small parts of sewing machines, bicycles, typewriters, novelties, etc. Total weight about 600 pounds.

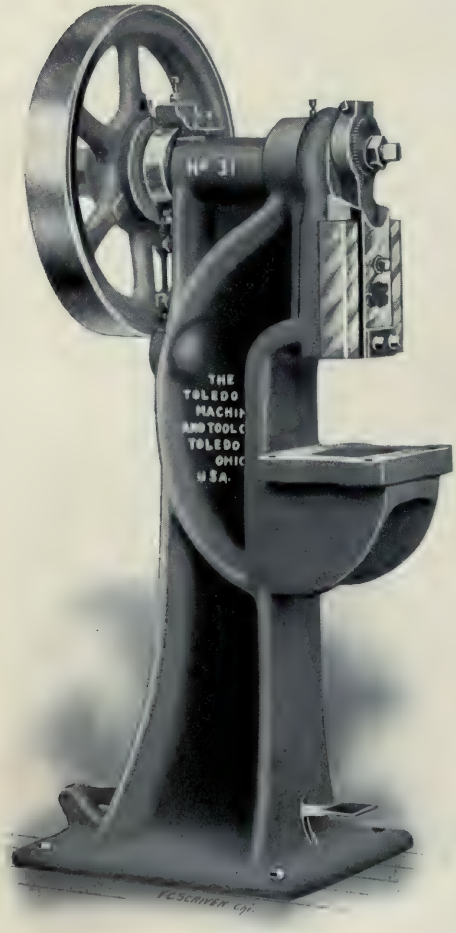
This Press has all the good features of the large Presses constructed on the same lines and described fully on page 22.

General description, page 80. Dimensions, page 81

Code Word on Standards..................

Code Word on Bench Press...............

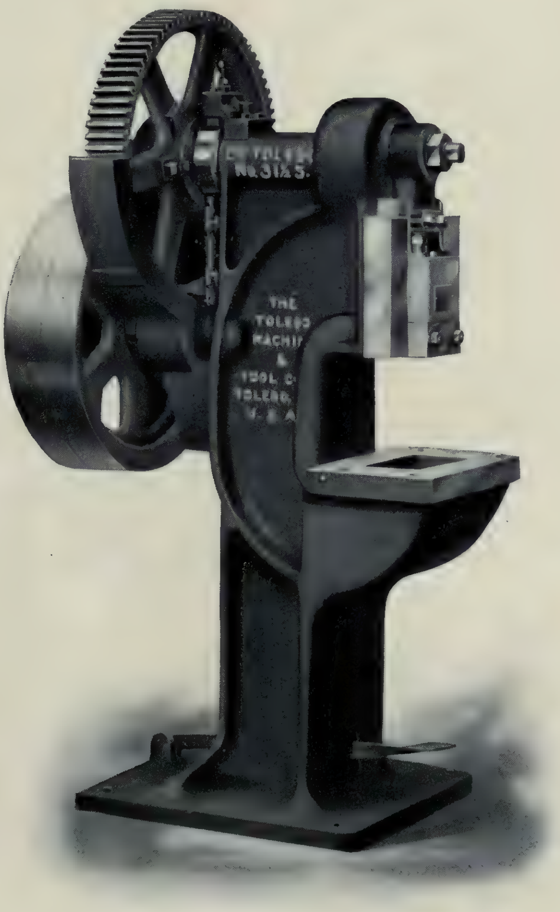
The "Toledo" No. 31 Punching Press



THIS Press, as shown above, is designed and used for punching, shearing and forming in the manufacture of agricultural implements, bicycles, carriages, hardware, typewriters, wagons, cash registers, etc. Total weight about 1,325 lbs.

General description, page 80. Dimensions, page 81. Code Word............

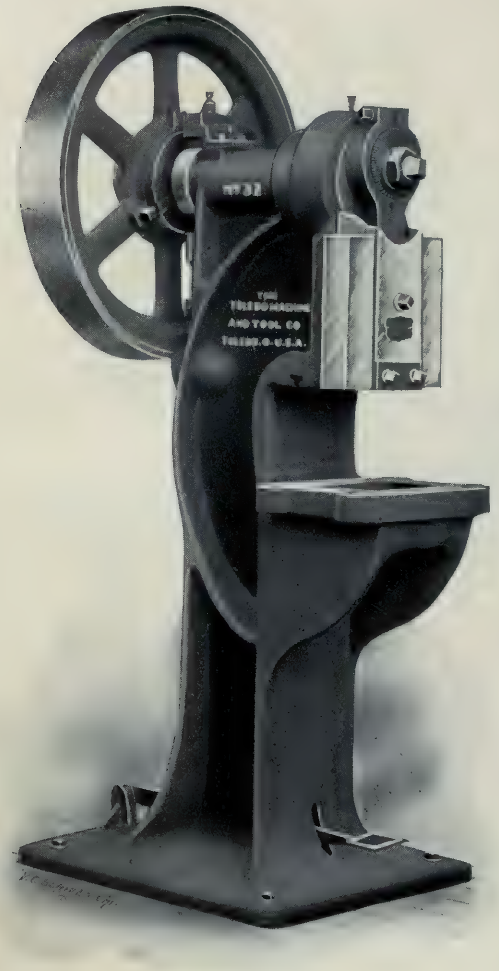
The "Toledo" No. 31½-S Punching Press, Geared



THIS illustration represents our well known type of "sleeve" connection for the standard solid back "30" series Presses, providing for 2 inches or more of adjustment and with a longer or shorter stroke, as desired, for any special work, such as is usually necessary in forming and bending operations on toys, go-carts, children's vehicles and other similar work requiring a longer stroke and greater die space. Total weight of this press about 2,200 lbs.

General description, page 80. Dimensions, page 81. Code Word...........

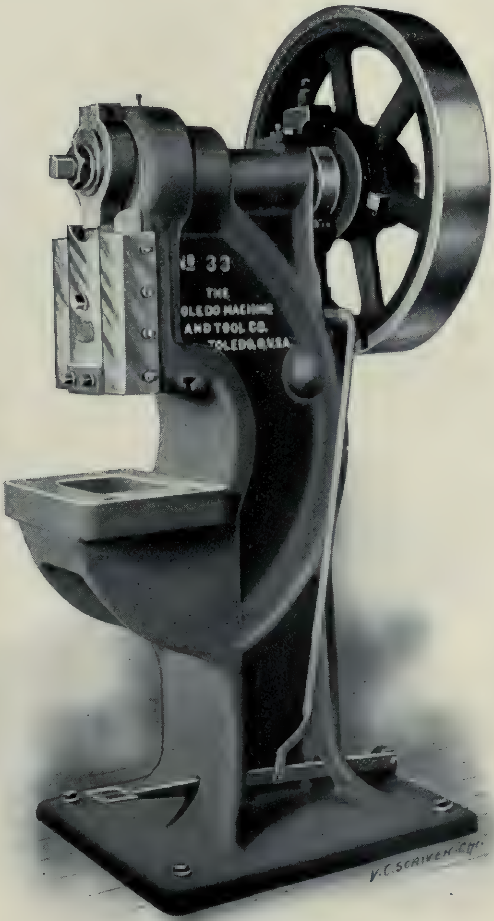
The "Toledo" No. 32 Punching Press



THIS Press, as shown above, is adapted and used for operating cutting and forming dies, and for a wide variety of heavy work covering many operations in the manufacture of agricultural implements, cutlery, firearms, hardware, architectural iron work, etc. Total weight about 2,350 lbs.

General description, page 80. Dimensions, page 81. Code Word............

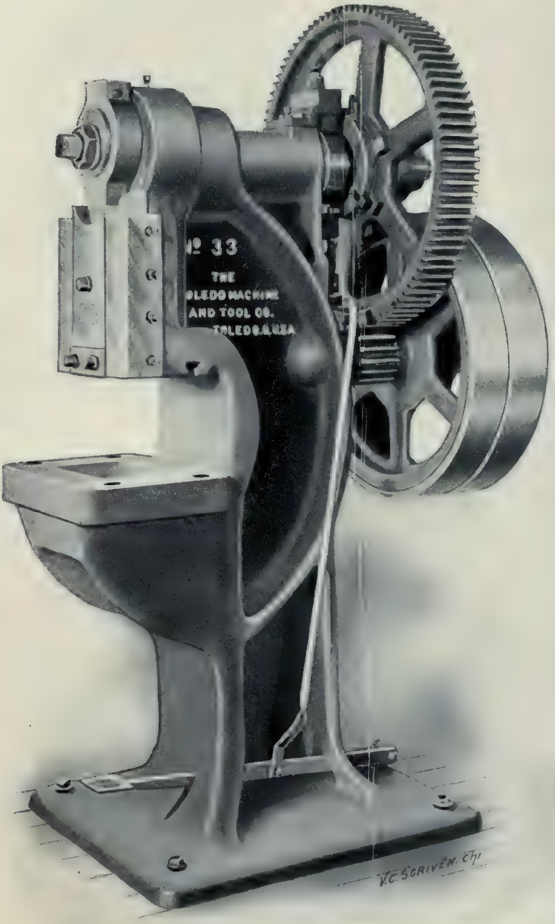
The "Toledo" No. 33 Punching Press



PRESS, as illustrated above, is adapted and used for heavy work such as required in the manufacture of hardware specialties, sewing machines, cash registers, bicycles, wagons, carriages, agricultural implements, etc., and for a general line of punching, shearing and forming. Total weight about 3,050 lbs.

General description, page 80. Dimensions, page 81. Code Word............

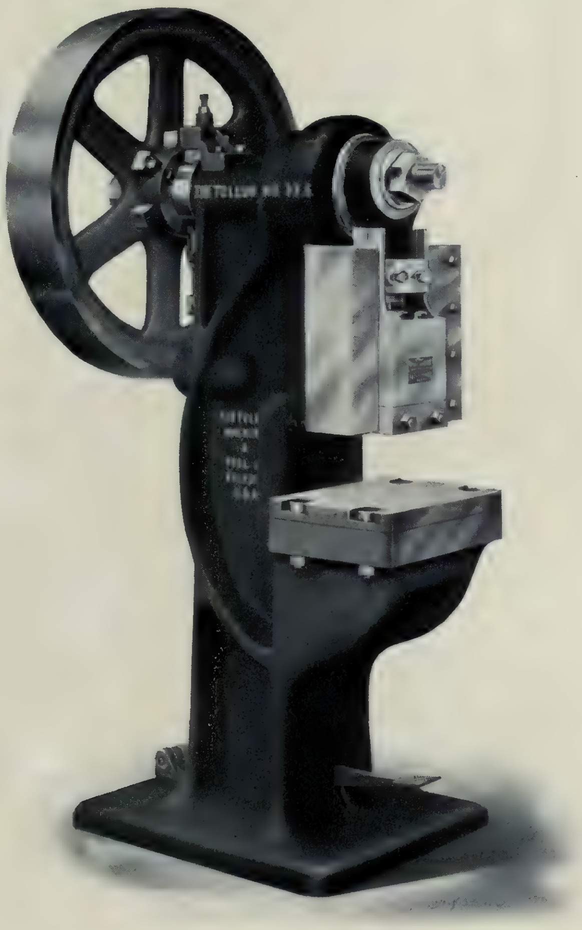
The "Toledo" No. 33 Punching Press, Geared



DESIGNED and adapted to a wide variety of heavy blank cutting, punching, perforating, forming, bending, etc. Total weight about 3,400 lbs.

General description, page 80. Dimensions, page 81. Code Word...........

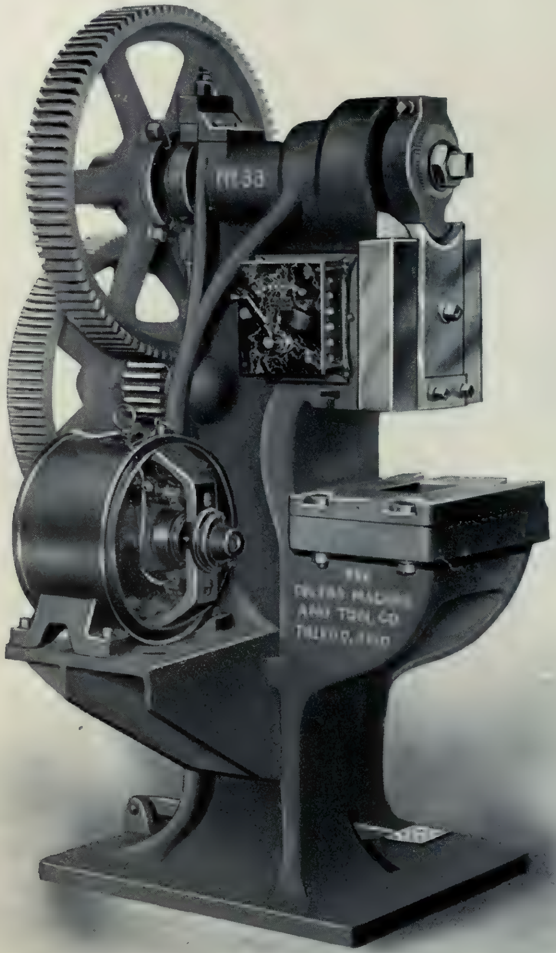
The "Toledo" No. 33-S Punching Press



THIS Press, as shown above, is fitted with sleeve or split type connection and with extra long stroke or slide motion to adapt same for bending or forming work. It is also adapted to cutting, perforating, shearing and forming on a wide variety of work. The split type connection is furnished only on special orders. Total weight about 3,250 lbs.

General description, page 80. Dimensions, page 81. Code Word............

The "Toledo" No. 33 Punching Press, Geared (Motor Driven)

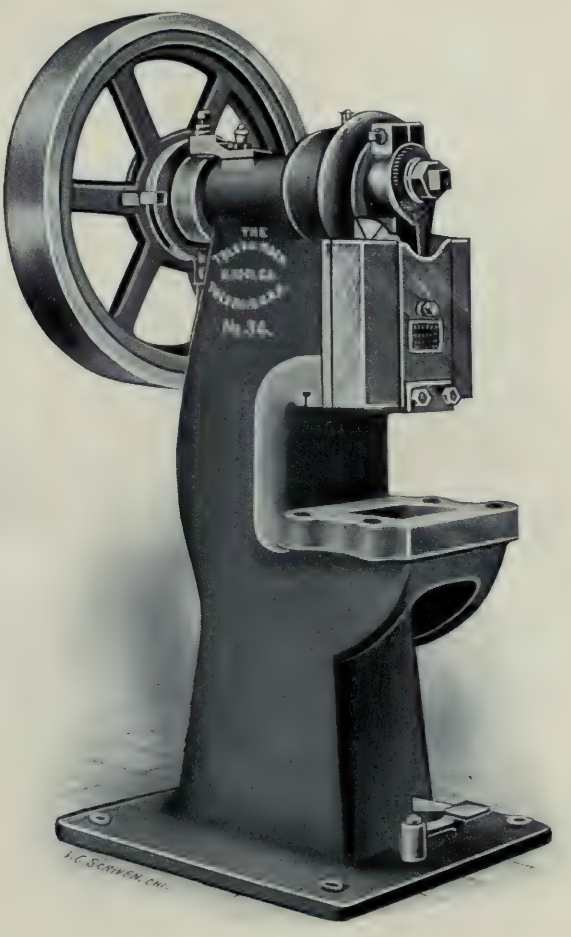


THE above illustrates a compact, rigid type of direct-connected motor-drive which is desirable and employed where machines must be so located that shop conditions will not permit of conveniently driving from line shaft, or where it is desired to eliminate belt-drive altogether.

This Press is used for blanking, perforating and forming small clips, washers, straps and smaller automobile parts, and a wide variety of other work. Total weight about 3,400 lbs.

General description, page 80. Dimensions, page 81. Code Word............

The "Toledo" No. 34 Punching Press

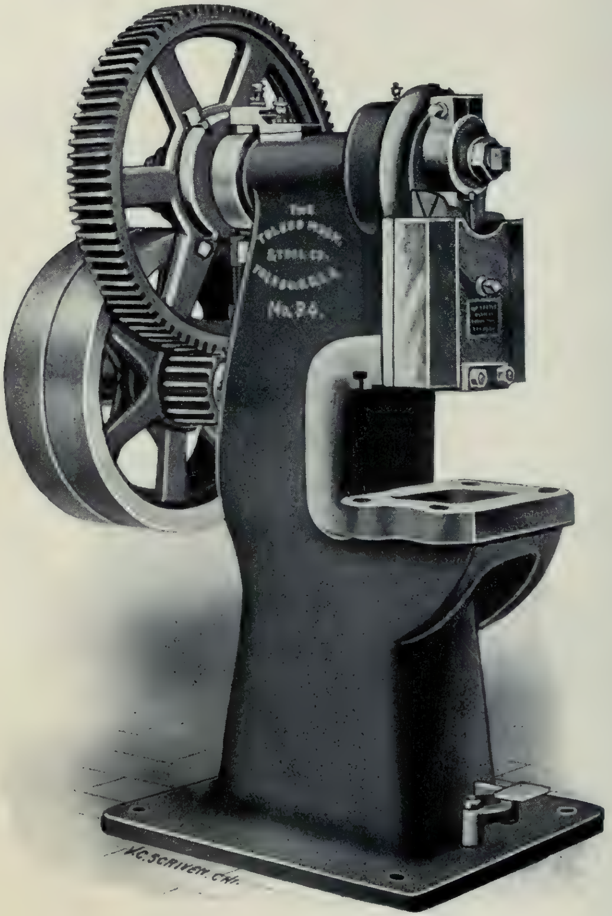

THE
No. 34.
L.C. SCRIVEN, CHI.

PRESS, as illustrated above, is largely employed in machine shops and drop forging works, as well as being extensively used in the manufacture of hardware, cutlery, gun, lock, sewing machine, telephone, electrical and switchboard parts, agricultural implements, wagons and automobile parts.

The "box" type of frame illustrated is used on this size Press only and is especially well suited for certain classes of work. In other features the Press is of the same general construction as Presses of this type shown on preceding and following pages. Total weight about 4,150 lbs.

General description, page 80. Dimensions, page 82. Code Word...........

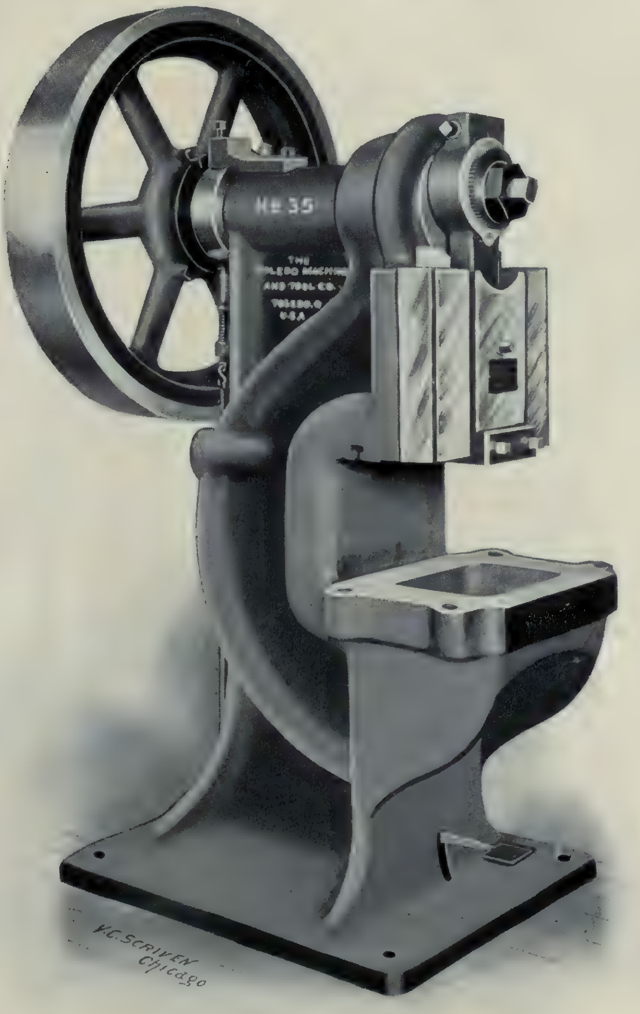
The "Toledo" No. 34 Punching Press, Geared


No. 34.
H.C. SCRIVEN. CHI.

NUMBER 34, Geared, is extensively used in the manufacture of a wide range of articles formed from bar and sheet metal, particularly where the heavy class of work requires a slow slide motion. Total weight about 4,500 lbs.

General description, page 80. Dimensions, page 82. Code Word............

The "Toledo" No. 35 Punching Press

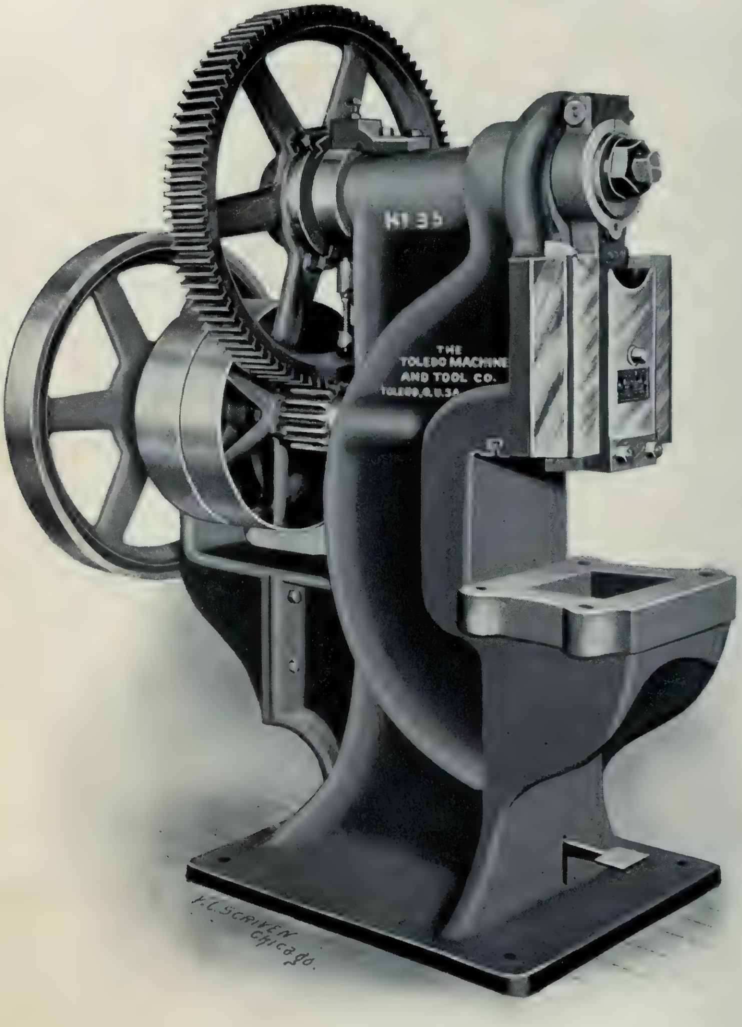


THE construction of this Press differs somewhat from the punching Presses described on preceding pages. It has much more metal in the frame than is contained in ordinary presses of this size, and less metal in the base, which, of course, is not subjected to so much strain.

Press is used for heavy punching and blanking such as is necessary in the manufacture of sprocket wheels for bicycles, also for trimming drop forgings and for various kinds of work which cannot be done on lighter machines. Total weight about 7,200 lbs.

General description, page 80. Dimensions, page 82. Code Word............

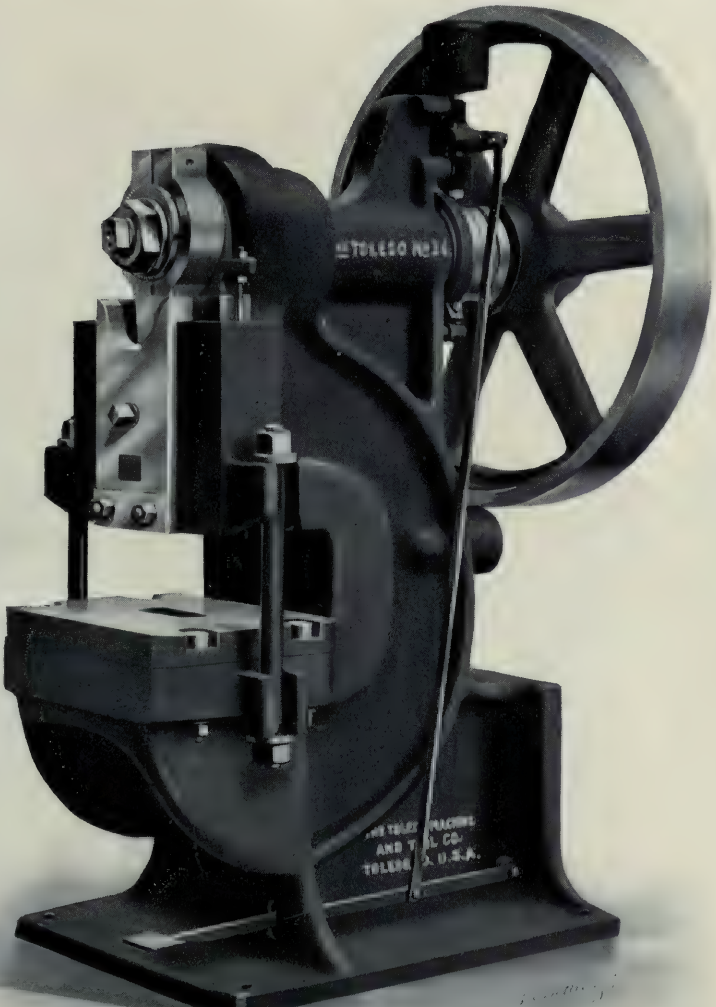
The "Toledo" No. 35 Punching Press, Geared



FOR the heavier punching on vehicle parts, hardware specialties, etc., and for broaching, drawing and various forming operations, this geared Press is extensively employed. Total weight about 7,950 lbs.

General description, page 80. Dimensions, page 82. Code Word............

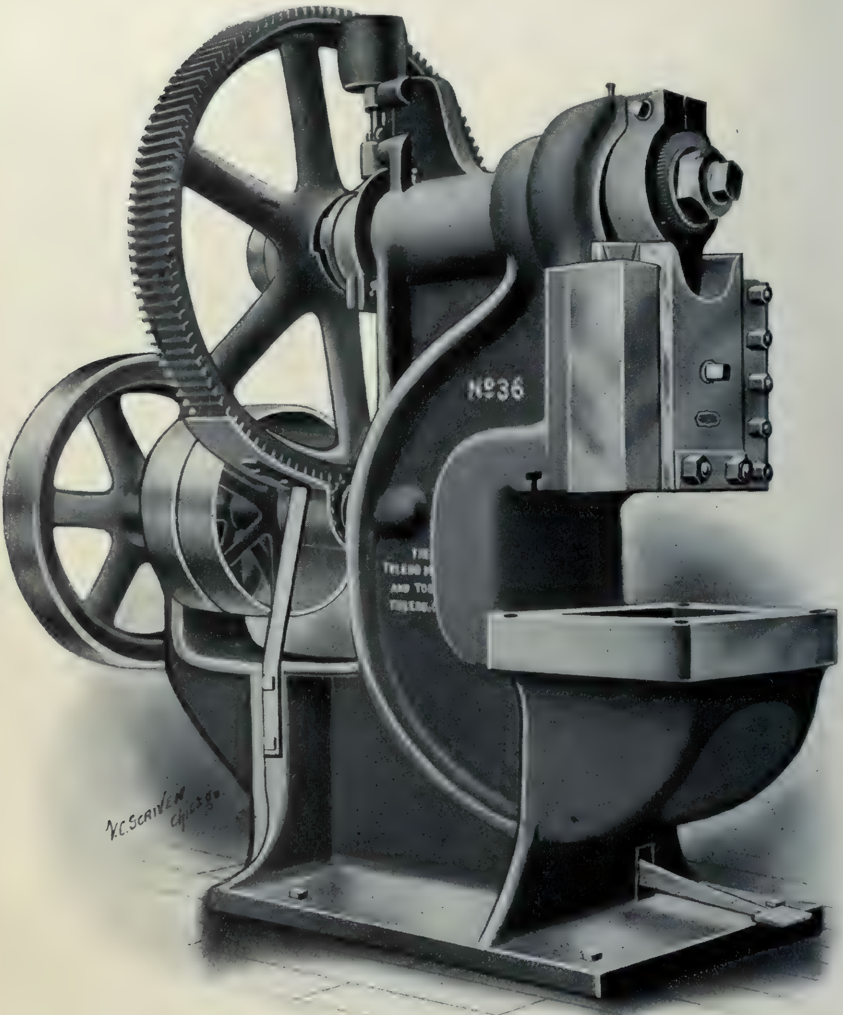
"The "Toledo" No. 36 Power Punching Press



NUMBER 36, as shown above, is fitted with tie rods, "Toledo" Block Clutch and a bronze adjusting gib for taking up the wear in the slide ways. Is adapted to a wide variety of heavy cutting, shearing, embossing, etc., as well as for operating trimming and forming dies and similar work. Total weight about 11,200 lbs.

General description, page 80. Dimensions, page 82. Code Word............

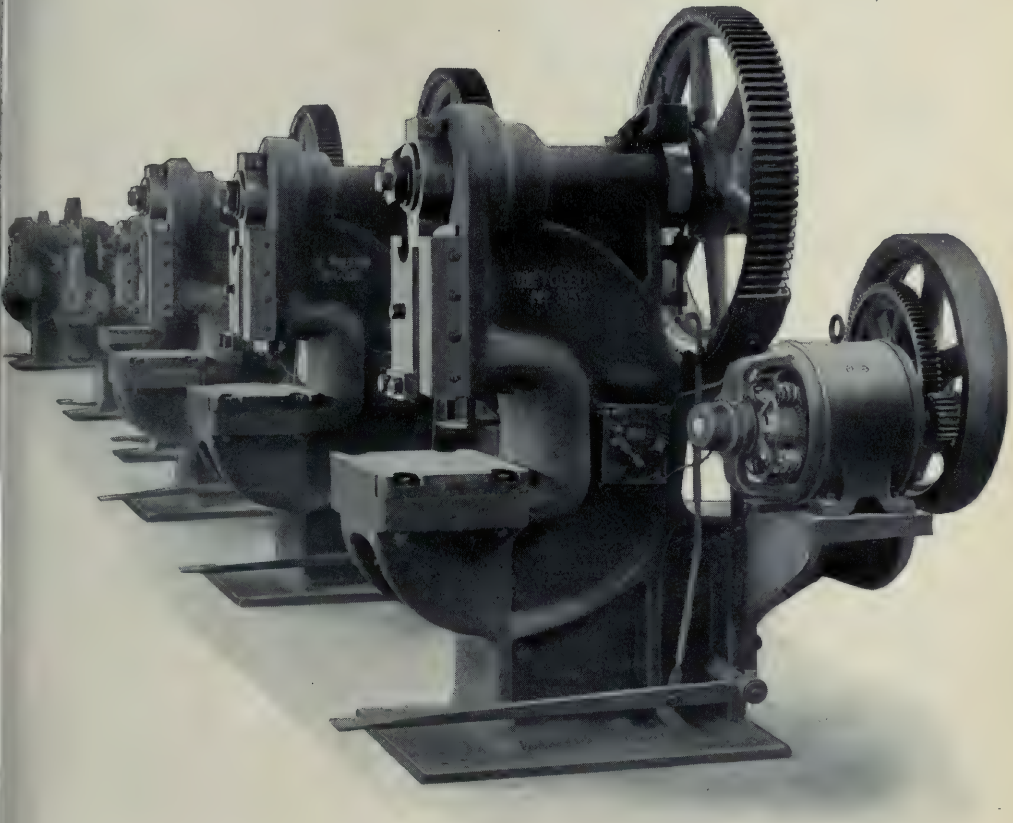
The "Toledo" No. 36 Power Press, Geared



THE construction of Press, as shown above, combines strength, rigidity and compactness, adapting it to heavy work, such as structural iron, bridge and railroad work, and trimming drop forgings; also to heavy blanking, punching and shearing, such as Presses on preceding pages are adapted to for work of this character. Crank shaft bearings are bushed with phosphor bronze; shaft is forged from high carbon steel; gearing is machine-cut from the solid. Total weight about 12,600 lbs.

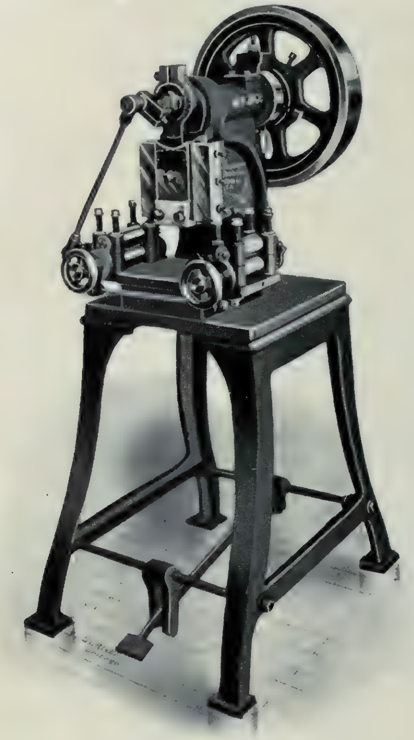
General description, page 80. Dimensions, page 82. Code Word...........

The "Toledo" Punching Presses, with Direct Connected Motors



THE motors are fitted with metal-bound rawhide pinions, and are supported by iron brackets bolted securely to the machine, with the starting box conveniently located for the operator. The gears are fitted with cast-iron guards, and the motor is mounted in such a manner that practically no greater floor space is required because of this form of drive.

The "Toledo" No. 30 Punching Press, with Double Roll Feed



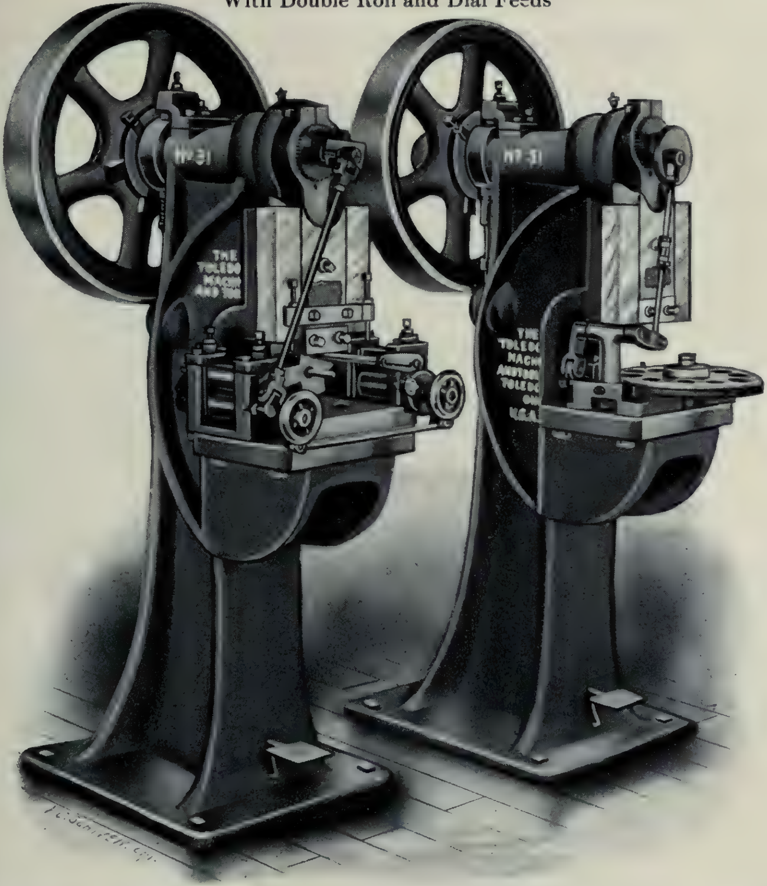
THE Automatic Feeding Device, as shown attached to No. 30 Punching Press, is used for automatically feeding stock from the strip or coil. The particular advantages of this attachment are, that it not only insures a greatly increased output, but also reduces the labor cost, and owing to its construction and operation the stock can be fed and cut up more economically, thereby leaving the minimum amount of scrap.

Usually the stock is started with left hand roll, which feeds until right hand roll is reached, when both rolls take action, feeding the stock in a uniform distance at each stroke. When end of strip is reached, right hand roll continues to feed until strip has passed entirely through. This attachment is provided with device for releasing rolls immediately before punch strikes the work, thus permitting the stock to give freely to the action of the dies. Total weight about 600 lbs.

General description, page 80. Dimensions, page 81. Code Word............

The "Toledo" No. 31 Punching Press

With Double Roll and Dial Feeds



NUMBER 31, with two different attachments, is shown in this illustration. Press to the left shows Double Roll Feed, which is indispensable for punching out duplicate parts in large quantities, such as special washers, links for bicycle chains, lock, gun and sewing machine, electrical, telephone and switchboard parts, and various articles of a similar nature.

Press to the right is fitted with Dial Feed, and is used for flattening bicycle chain links, etc.; the dial feed carries blanks, cups, shells, etc., to a point directly below the punch to receive the second and third operations on work requiring several operations.

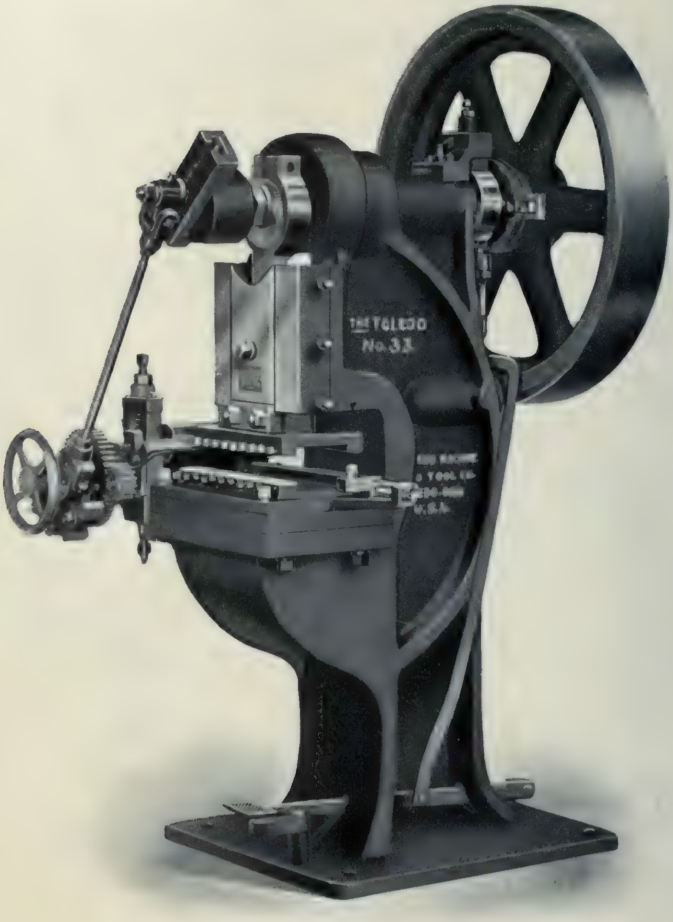
Positive stop or extra guide pin is usually provided to insure exact position of the dial before punch enters die.

The advantage of this dial feed is that it works automatically, leaving the operator free to fill the receiving receptacles or pockets with the articles to be pressed, stamped or reduced, the work being automatically discharged from the machine by an adjustable knockout arm not shown in cut.

See page 16 for Roll and Dial Feeds

General description, page 80. Code Word for Press with Roll Feed..........
Dimensions, page 81. Code Word for Press with Dial Feed..........

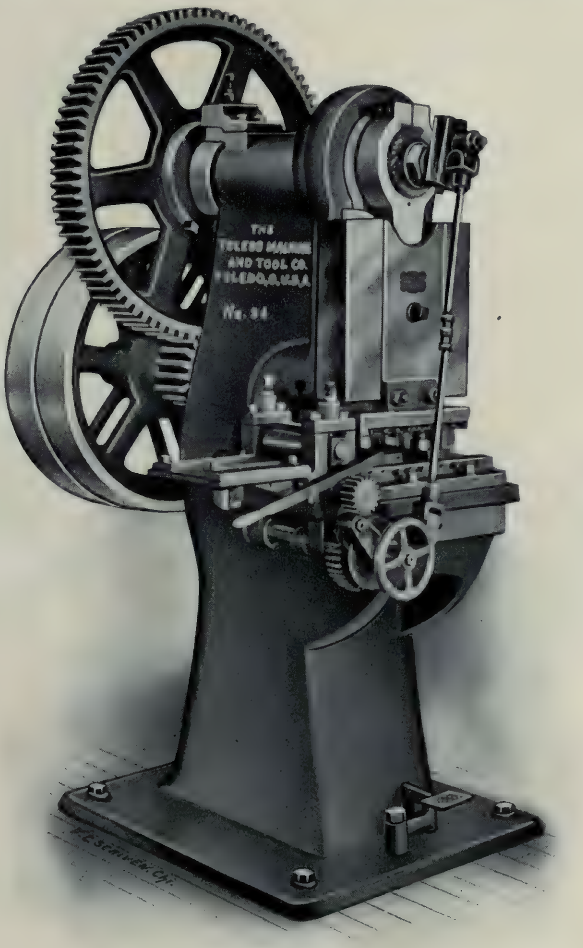
The "Toledo" No. 33 Punching Press



OUR No. 33 Punch Press is shown above with single roll feeding attachment, including special holders for gang die work on nut locks and washers. The special stop-gauge illustrated is furnished only when ordered. at an additional charge. This applies to all special holders on all automatic feeding attachments illustrated herein. Attachments of this nature are advantageously employed for the production of a large variety of show-case brackets, hardware and other specialties. Total weight about 3,050 lbs.

Description of Automatic Roll and Dial Feeds, page 16.
Dimensions, page 81. Code Word, complete as shown...........

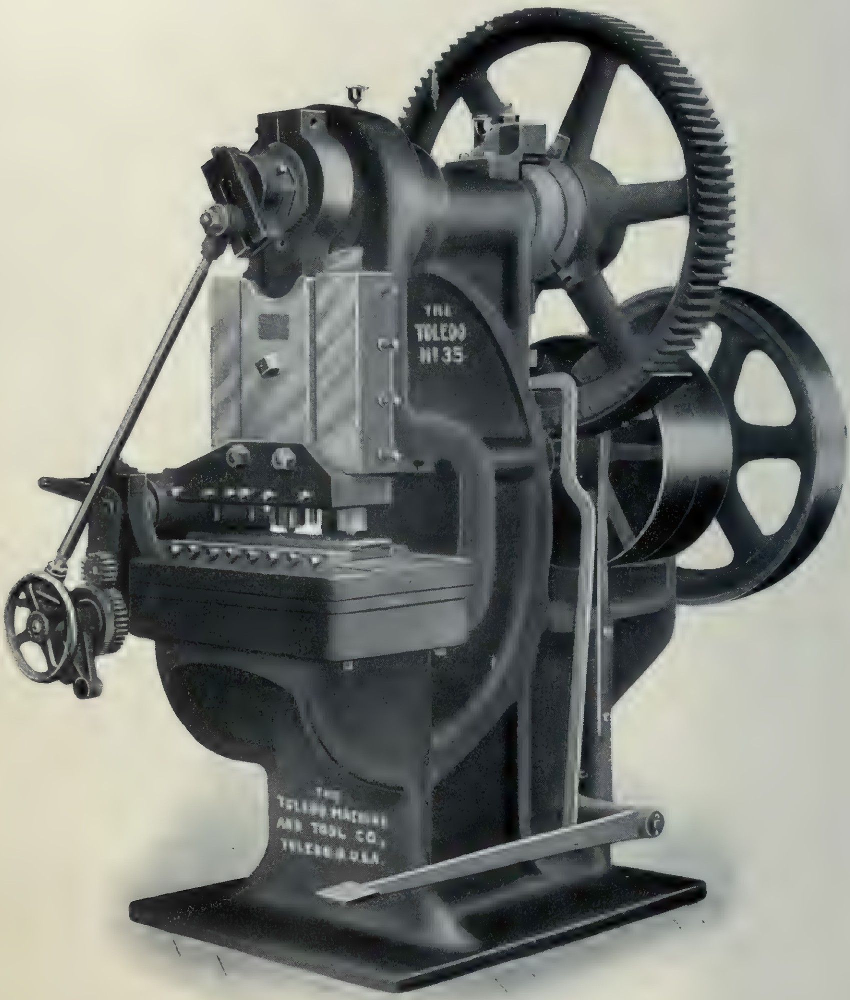
The "Toledo" No. 34 Punching Press, Geared With Single Roll Feed and Releasing Device



As illustrated above, Press is specially adapted to piercing and blanking heavy chain links, lock, washer, clock, watch and hardware parts, electrical specialties, dynamo and motor parts, etc. The roll feed is used for automatically feeding sheet metal or wire into cutting and forming dies. The automatic roll release can be adjusted to release grip of roll on the sheet at each stroke of Press, allowing stock to readily find its position. Total weight about 4,500 lbs.

For description of Roll Feeds, see page 16
General description, page 80. Dimensions, page 82
Code Word, complete as shown............

The "Toledo" No. 35 Punching Press, Geared With Single Roll Feed



WITH the automatic attachments represented, press above shown is adapted and used for a very wide range of work. The gang or group dies shown are arranged for progressively producing several operations simultaneously, cutting out two special discs or washers at each stroke of Press. Total weight about 7,950 lbs.

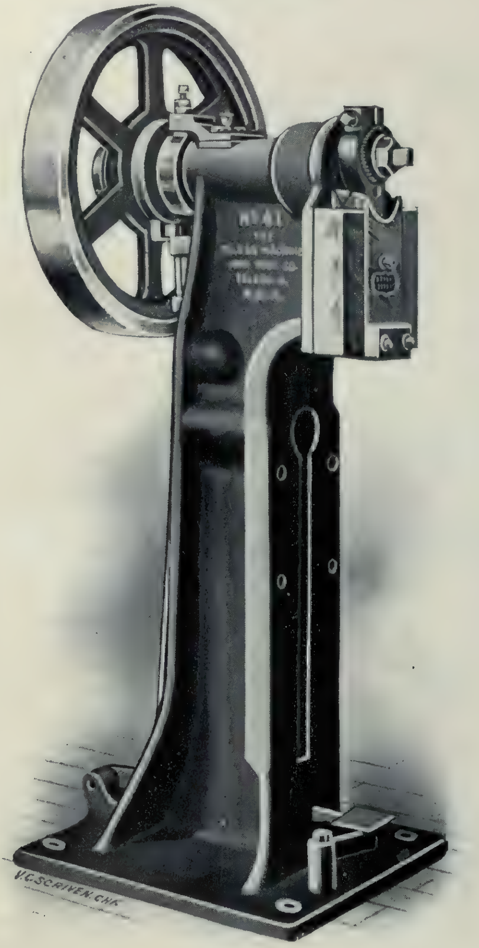
General description, page 80. Dimensions, page 82
Code Word, with Roll Feed, but without Dies...........

The "Toledo" Blanking, Forming, Horning and Wiring Presses

Number of Press Page of Catalogue	41	41-A	41 High Pattern	42	42-A	42 High Pattern	43	43-A	43-B	44	45
PLAIN PRESS Code Word											
Price bored for horn only	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Weight with adjustable knee, about pounds	1450	2100	1600	2600	4050	2725	4050	4750	5100	4400	8650
Area of bed, F. to B., R. to L. inches	10x15	10x15	10x15	12x18	12x18	12x18	14x19	14x19	14x19	14x20	17x26
Opening in bed, F. to B., R. to L. inches	5x7	5x7	5x7	6x9	6x9	6x9	7x10	7x10	7x10	8x11	11x15
Distance back from center of slide inches	5½	14	5½	6	15	6	7	15	21	7	8½
Standard stroke of slide ......inches	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1¾
Adjustment of slide............inches	1	1	1	1	1	1	1	1	1	1	1
Size of hole in frame for horn, dia. and length ....inches	3⅛x10½	3⅛x14	3⅛x10½	3½x14	3½x15½	3½x14	4x17¼	4x19	4x25¼	4x15	....
Minimum distance bed to slide, all up inches	7	7	7	7½	7½	7½	8	8	8	10	12
Maximum distance bed to slide, all up inches	16	16	35	15½	14	36½	17	17	17	18	18
Thickness of bolster...........inches	1½	1½	1½	1½	1½	1½	1¾	1¾	1¾	2	2½
Recess in slide, dia. and depth. inches	1 9/16x2¼	1 9/16x2¼	1 9/16x2¼	1 9/16x2½	1 9/16x2½	1 9/16x2½	2x2½	2x2½	2x2½	2x2¾*	3x3*
Height floor to center of shaft inches	53	54	72	57	57	78	62	59	59	68	72
Height floor to center of horn hole inches	32	33	51	32	32	53	34	32	32	36	37
Will close seams, length .....inches	10	24	10	12	20	12	13	24	28	14	18
Will close seams, diameter ...inches	26	26	45	28	28	49	28	28	28	28	28
Will wire, diameter and length..inches	8x10	18x10	8x29	10x10	24x8½	10x31	12x11	24x11	24x11	12x11	14x11
For flywheel and floor space, see Press No.	31	31	31	32	32	32	33	33	33	34	35
Price bored for horn only	$....	$....	$....	$....	$....	$....	$....	$....	$....	$..	$....
Weight about ....pounds	1700	2350	1850	2975	4425	3100	4450	5150	5500	4800	9400
For gearing, etc., see Press No.......	31	31	31	32	32	32	33	33	33	34	35

*Square.

The "Toledo" No. 41 Horning, Wiring and Reducing Press Without Bed


V.C.SCRIVEN.CHK.

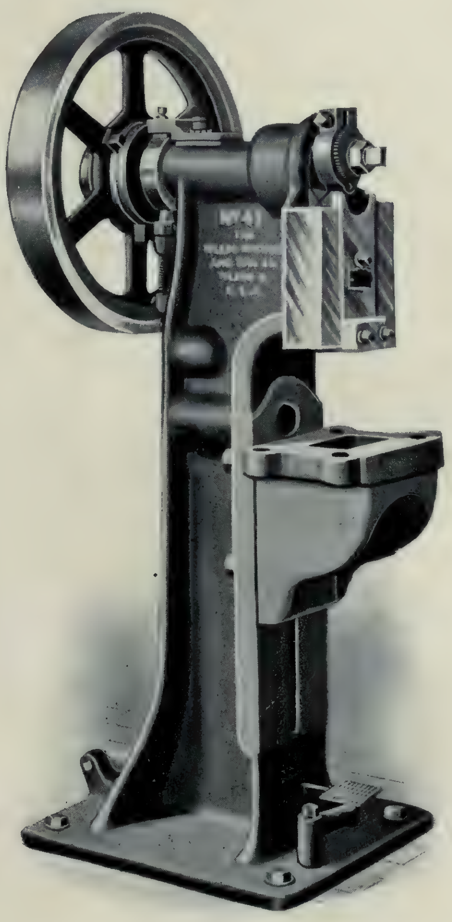
NUMBER 41 Horning, Wiring and Reducing Press, without bed, is adapted to a wide range of work which can be accommodated by means of special beds and fixtures attached to the frame of Press. Frame is made to accommodate large studs or screws to hold fixtures or bed securely to Press.

This Press is also adapted to riveting, swaging, reducing, punching and shearing. Special beds for large blanking dies can be fitted to this machine where large blanks of thin sheets of metal are to be cut, which the opening in beds of regular standard blanking presses will not accommodate.

Also used for the same lines of work as Presses Nos. 12 to 14 described elsewhere. Total weight about 1,500 lbs.

Dimensions, page 103. Code Word, complete as shown...........

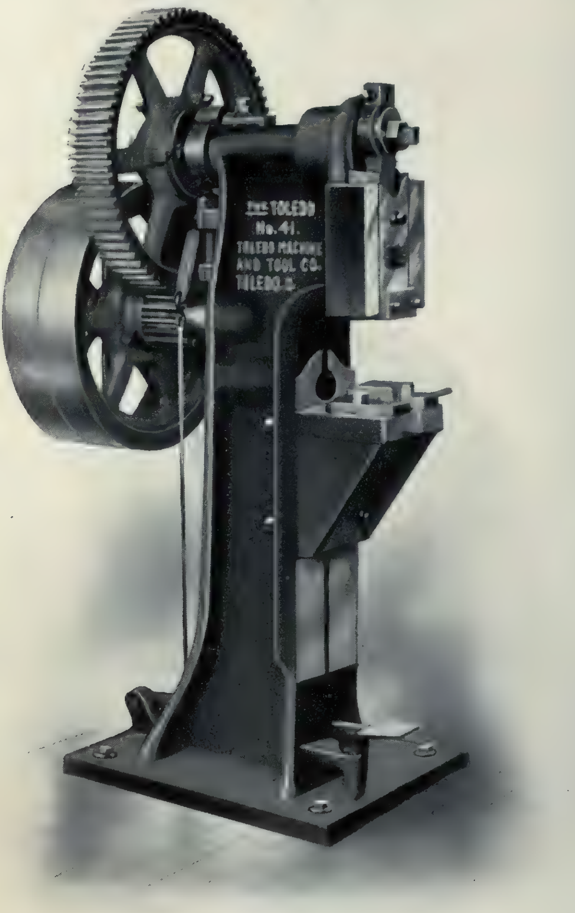
The "Toledo" No. 41 Press, with Detachable Bed



NUMBER 41 Press, as shown above, with standard detachable bed, can be used for the same class of work as our regular No. 31, such as reducing, punching, shearing and forming, in the manufacture of agricultural implements, bicycles, carriages, hardware, typewriters, cash registers, etc. Also adapted to the same line of work as No. 41, described on preceding page, and, with special tools, to finishing, forming, closing corners, wiring small drip pans and riveting handles on same. Total weight about 1,500 lbs.

Dimensions, page 103. Code Word, complete as shown...........

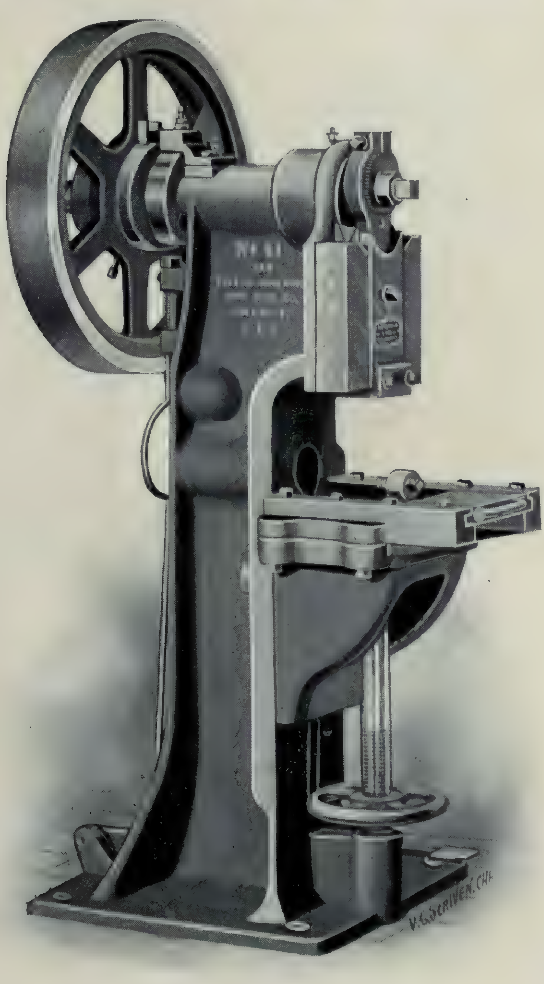
The "Toledo" No. 41 Press
With Long Stroke and Broaching Attachment



THIS is one of the several sizes of Presses specially suited for broaching and special shearing and punching. The construction of frame permits the application of special tools which accommodate a wide range of work, such as heading, riveting, forming, shearing, etc. Total weight about 1,500 lbs.

Dimensions, page 103. Code Word............

The "Toledo" No. 41 Press With Sliding Bolster and Screw Adjustment to Bed


V.G.SCRIVEN.CHI.

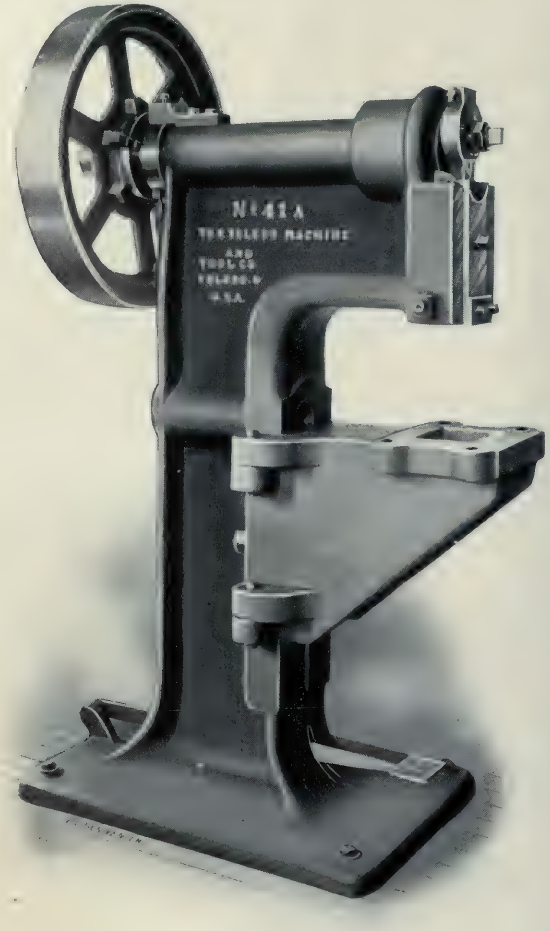
THE Special Bed and Sliding Bolster shown above are made to suit dies of a variety of sizes and are specially fitted for wiring buckets, coffee-pots, flaring pails, tin cups and similar work.

The screw adjustment enables operator to quickly and conveniently adjust bed to any desired height to suit the dies.

Press is adapted to the same line of work as the No. 41 described and illustrated on preceding pages. Total weight about 1,500 lbs.

Dimensions, page 103. Code Word for Press, complete as shown............

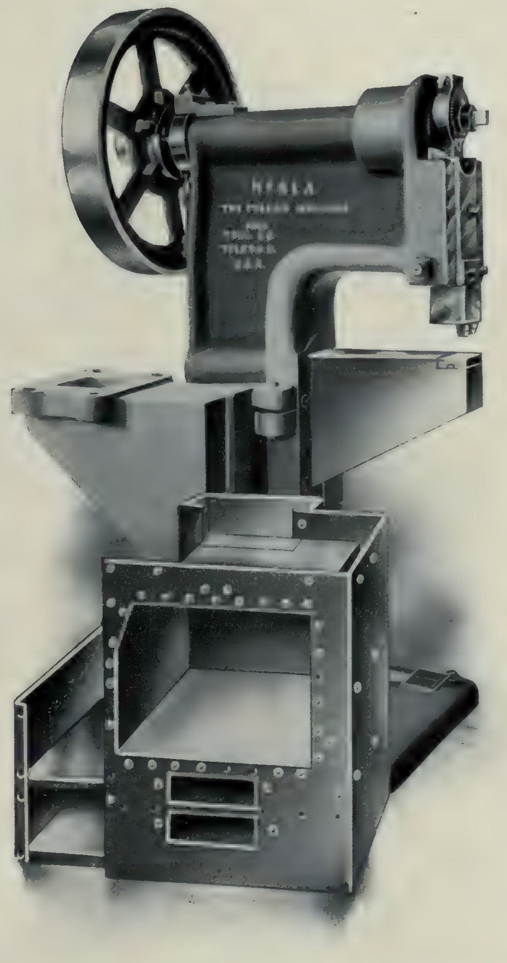
The "Toledo" No. 41-A Press, with Swinging Knee



NUMBER 41-A Press, as shown above with swinging knee, is adapted and used for cutting openings in, or perforating wide sheets, and will shear, blank or perforate to the center of 28-inch sheets. Also adapted to a general line of blanking, forming, horning, riveting, etc. Knee or bed is held in position by means of large steel studs. Total weight about 2,375 lbs.

Dimensions, page 103. Code Word, as shown...........

The "Toledo" No. 41-A Press, with Riveting Attachment

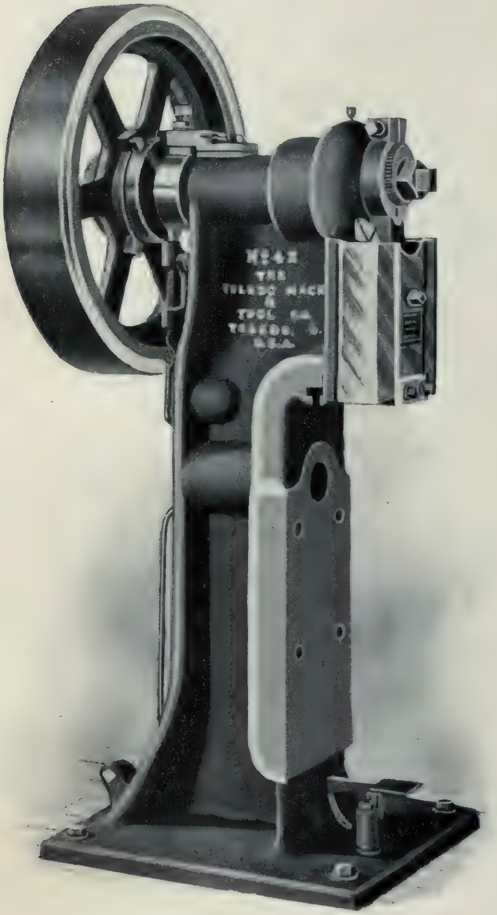


OUR Special Riveting Press No. 41-A is designed specially for riveting on ranges and other large work. It has an unusually deep gap to accommodate the work for which it is intended. It is so arranged that it will set down oval or flat rivets, or both. The special tools can be removed and the Press converted into a horning, wiring and blanking Press for a general line of work, such as Presses of this type shown on preceding pages are suited for.

The knee is swung out of the way when riveting or other special tools are to be used, and placed in position for cutting openings in large sheets, etc. Press will shear, blank and perforate to the center of 28-inch sheets. Total weight about 2,375 lbs.

Dimensions, page 103. Code Word, as shown............

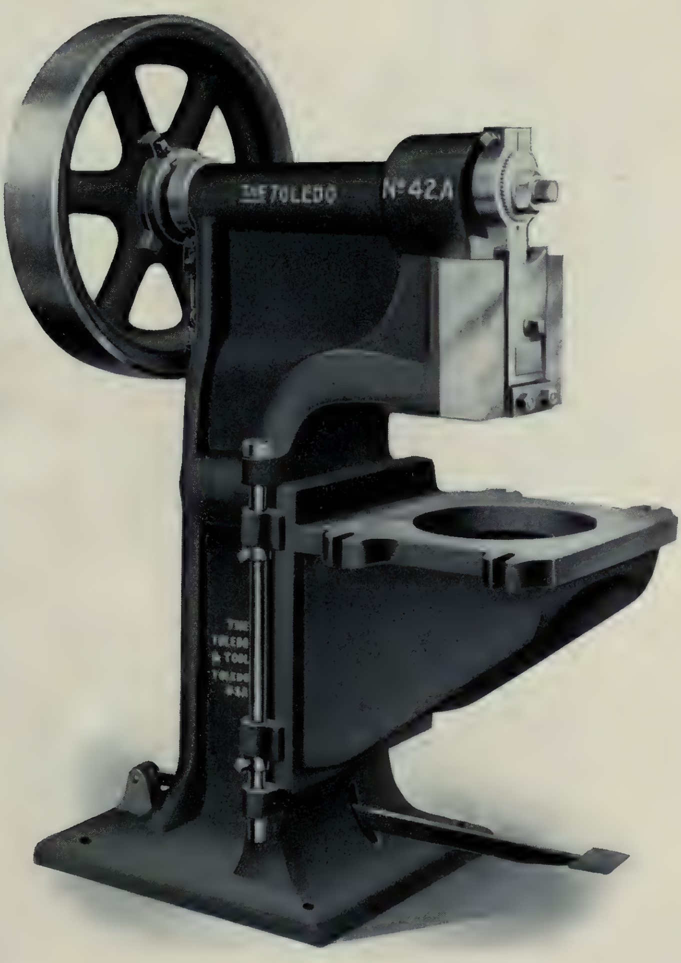
The "Toledo" No. 42 Press



THE frame of this style Press is made with a series of drilled holes for large studs or screws to hold beds or other fixtures securely in place. Adapted to same line of work as No. 41 shown on preceding pages. Total weight about 3,000 lbs.

Dimensions, page 103. Code Word, as shown...........

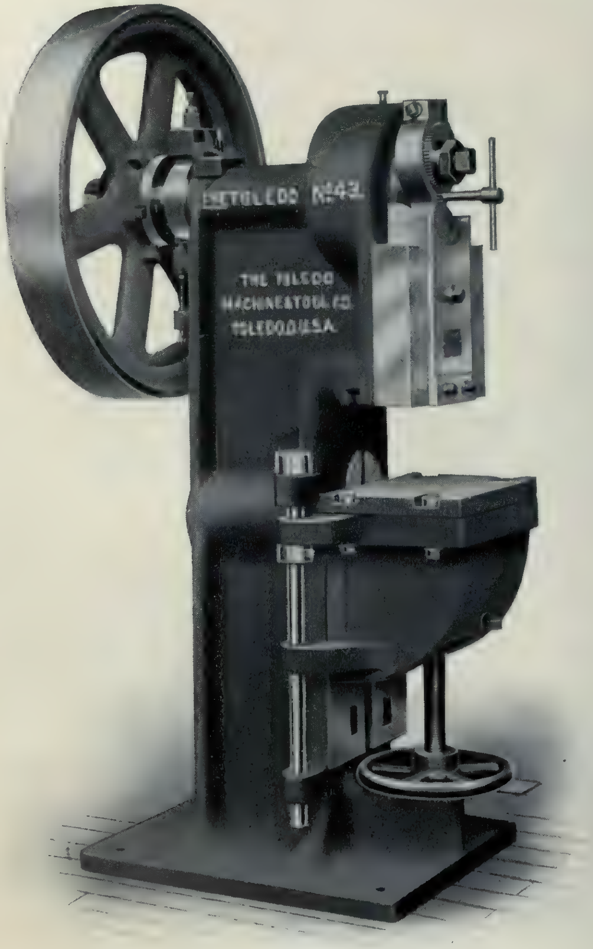
The "Toledo" No. 42-A Power Press



NUMBER 42-A Press, as illustrated above, has capacity for work of the same weight as No. 41-A shown on page 109, but is arranged with special deep throat or distance back from slide to adapt it for perforating, blanking, notching, riveting and other operations on work of greater width than can be handled on the Standard No. 42. Total weight about 4,450 lbs.

Dimensions, page 103. Code Word............

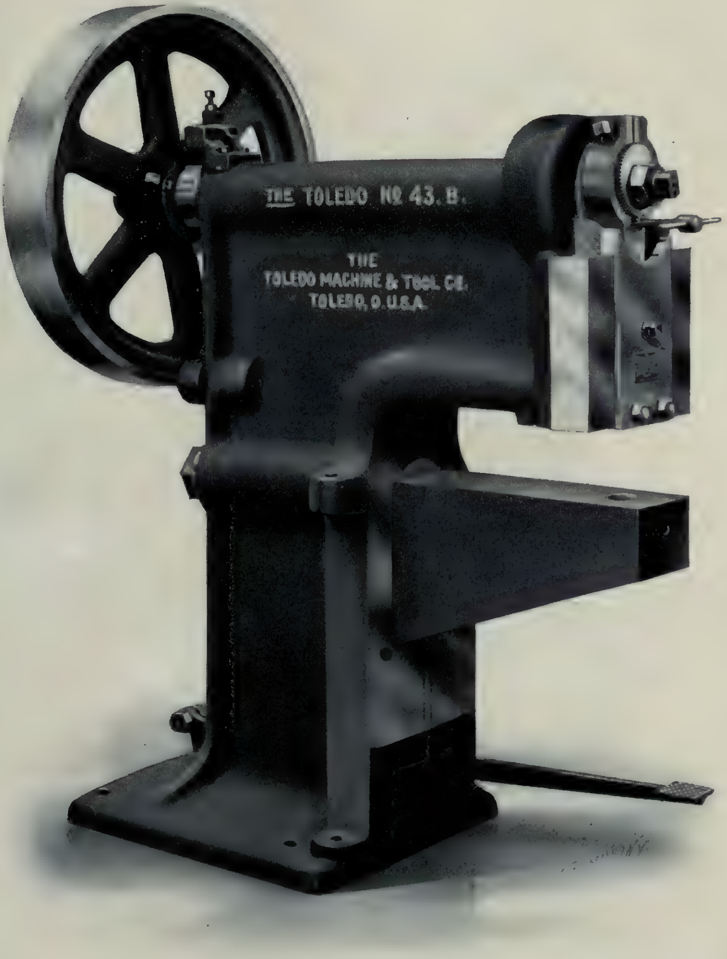
The "Toledo" No. 43 Press



THE adjustable bed on this Press, as shown above, adapts it for using dies of varying heights. Bed can be easily and quickly swung out of the way or detached entirely when Press is to be used in connection with perforating, riveting and other operations on steel rims or other automobile parts, and work of a similar nature requiring horns and other fixtures. Total weight about 4,600 lbs.

Dimensions, page 103. Code Word...........

The "Toledo No. 43-B Horning and Riveting Press

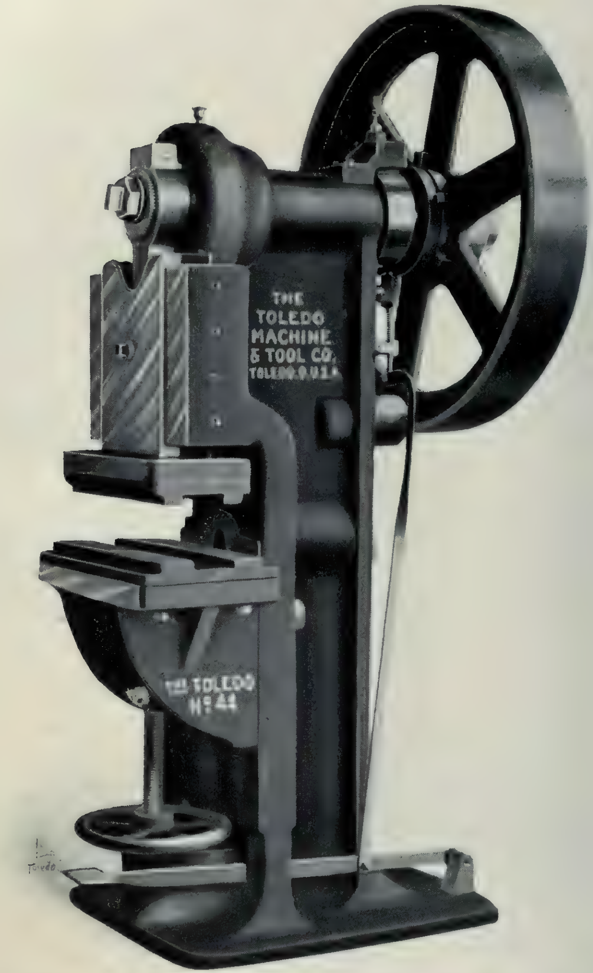


THE Press shown in accompanying illustration is used by many manufacturers for perforating, riveting, seam clinching and other operations on steel barrels, tanks, steel boxes and other long receptacles which cannot be handled on the Standard No. 43 Press.

The No. 43-B Press has a distance of 21 inches from center of slide to frame and will perforate or rivet in the center of work 42 inches long. Total weight about 5,525 lbs.

Dimensions, page 103. Code Word............

The “Toledo No. 44 Press, Special

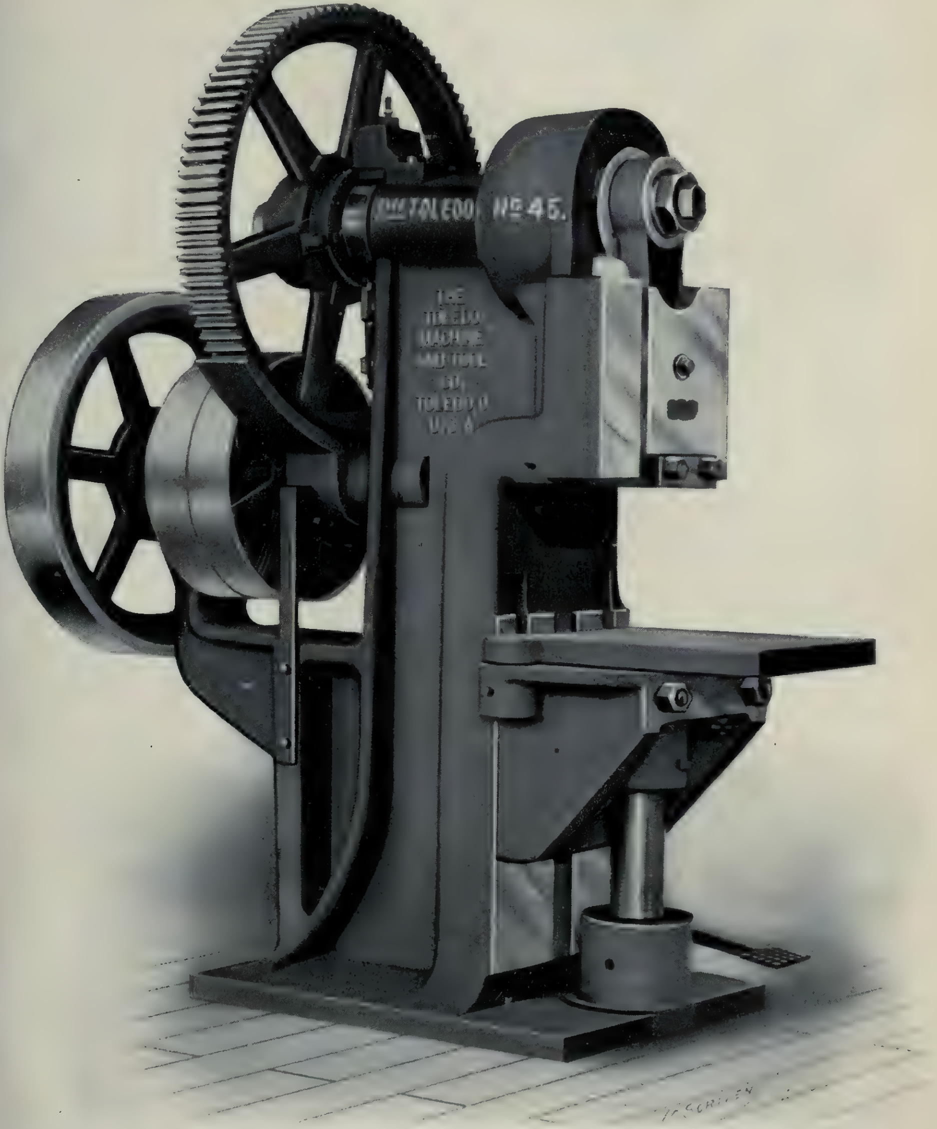


NUMBER 44 Press with detachable and adjustable bed, with slide fitted with an unusually wide flange right to left, is here shown. The bed and slide are fitted with upper and lower die holders to accommodate multiple perforating and wide forming dies for steel strips or bars.

The bed being made adjustable, Press is adapted to operating a wide range of dies of various heights. Press can also be fitted with long or short stroke, as required, and is specially suited for medium heavy punching and forming. Total weight about 5,000 lbs.

Dimensions, page 103. Code Word............
Area of slide flange, F. to B., R. to L., 10 x 20

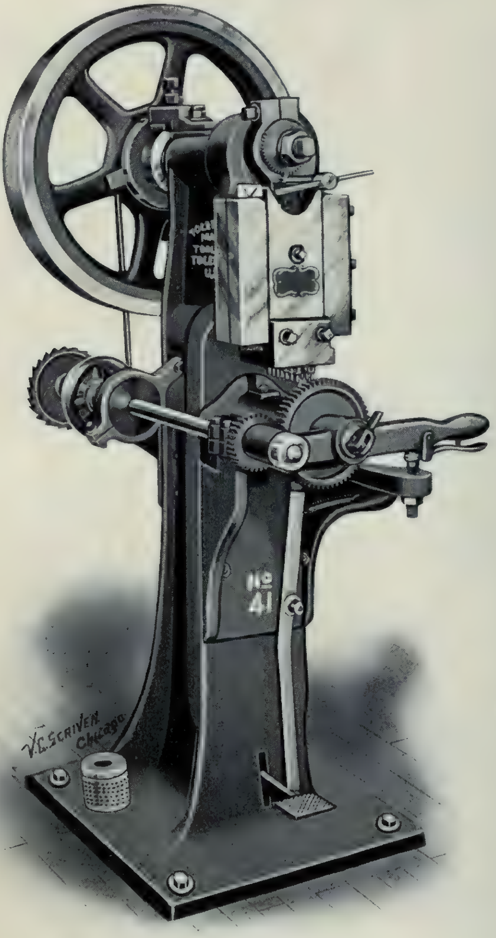
The "Toledo" No. 45 Blanking, Forming and Wiring Press Geared



THE above cut illustrates a heavy type of Press which can be used as a Punching Press the same as No. 35, illustrated and described elsewhere, and with the bed or knee swung out of position, this Press can also be used in connection with special horn and other fixtures on heavy riveting, swaging, perforating and other heavy work. This is a very handy Press in congested shops having limited quantities of heavy blanking, forming, perforating and riveting work. Total weight about 10,000 lbs.

Dimensions, page 103. Code Word...........

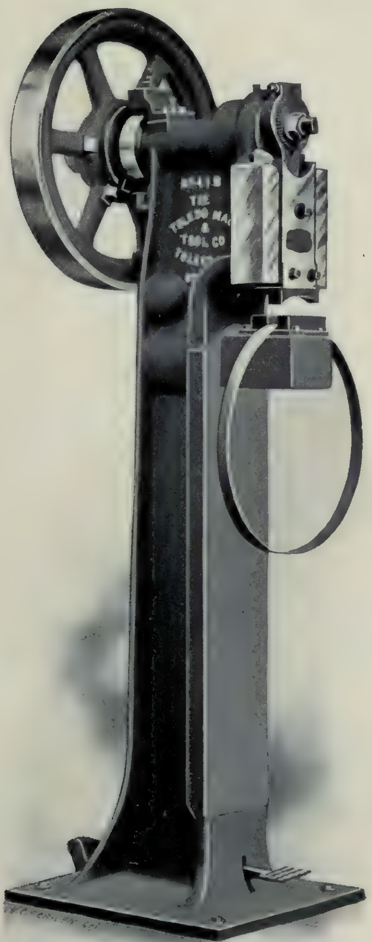
The "Toledo" No. 41 Punching Press With Automatic Cylinder Perforating Attachment



THE Automatic Perforating Attachment as applied to our No. 41 Press and represented in the illustration above, is designed for rapidly perforating burner shells, percolator-strainers or other cylindrical work where the perforating cannot be done until after the cylinders are formed. Shells or cylinders can be quickly and accurately placed in position and easily removed from Press. Total weight about 1,500 lbs.

Dimensions, page 103. Code Word, complete as shown...........

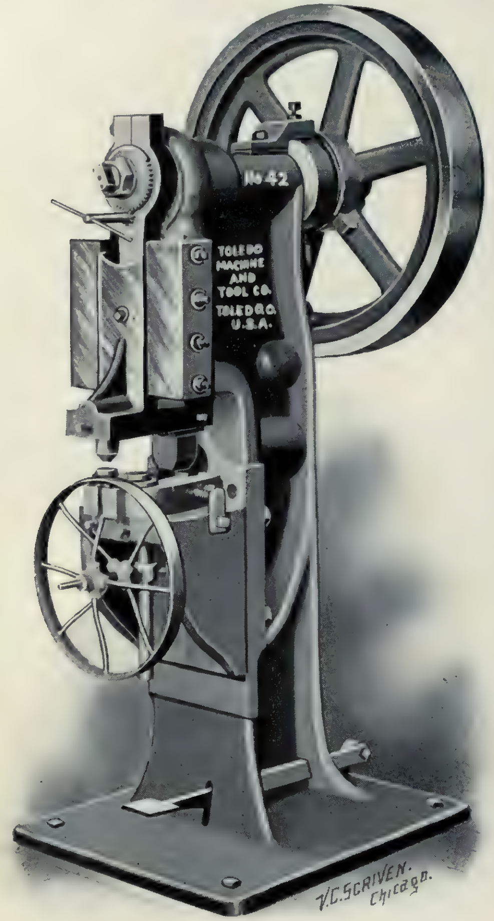
The "Toledo" No. 41-B High Pattern Press With Welding Attachment



THIS High Pattern Power Press, with attachments illustrated, is designed and used for swaging or sizing tires, bands or other similar work used for agricultural implements and various other purposes. This swaging and sizing operation is accomplished immediately following the welding of the bands either by electric welding or other process. These same tools have been and are now being extensively used for the welding process, also where it is not convenient to have an electric welder installed. Total weight about 1,300 lbs.

Dimensions, page 103. Code Word, complete as shown............

The "Toledo" No. 42 Press, with Wheel Riveting Attachment



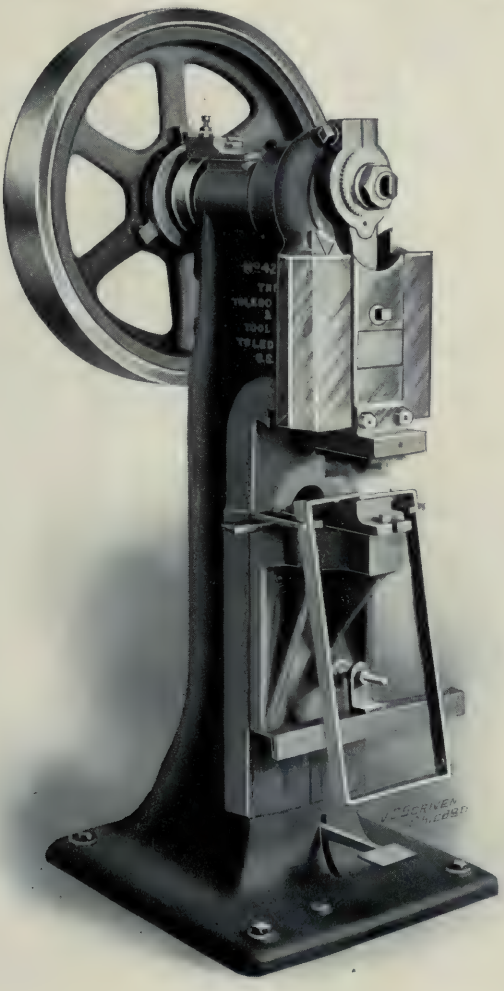
THE No. 42, with Special Wheel Riveting Device, is designed to rivet spokes and tires in wheelbarrow and agricultural implement wheels and at the same operation form a shoulder on spoke under tire.

Cut shows wheel in position to be riveted, which is done by pressure instead of a blow, in this manner upsetting the stock in the hole before the riveting takes place. The completed work is much more rigid with this method of riveting than if headed over on end only with spoke not completely filling the hole in tire.

The riveting attachment can be removed and a detachable bed or knee attached, thus adapting the Press to other lines of work. Total weight about 2,400 lbs.

Dimensions, page 103. Code Word, complete as shown...........

The "Toledo" No. 42 Press, with Band Welding Attachment

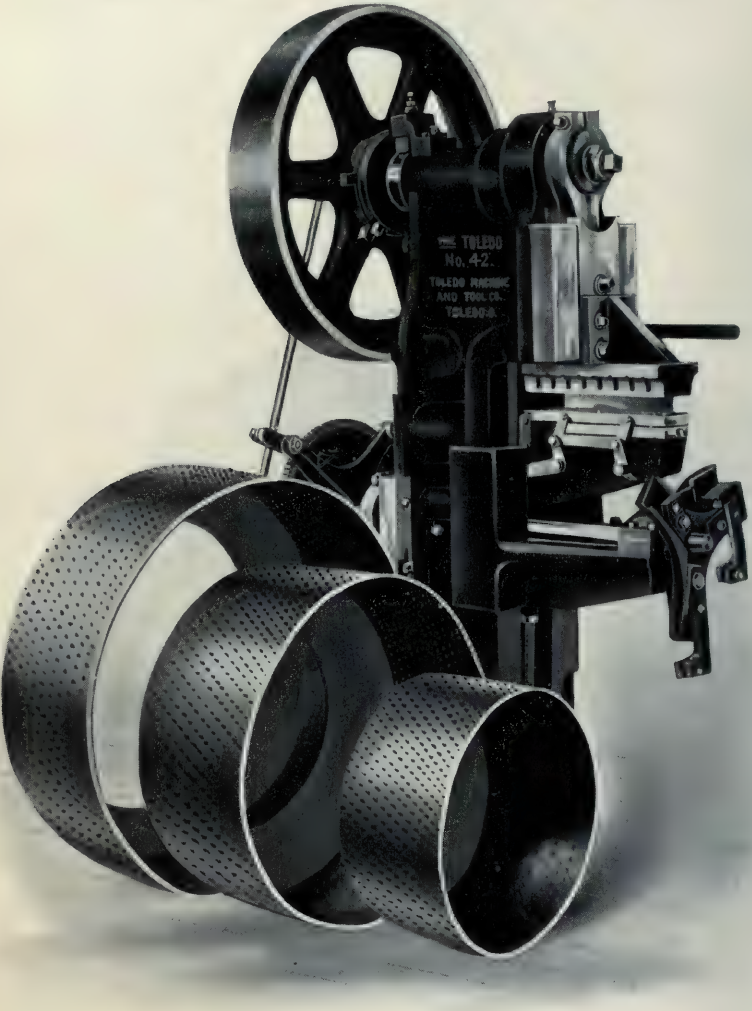


NUMBER 42 Press, with Band Welding Attachment, is adapted to a heavier class of welding than can be done on our No. 41, described on page 117. Specially suited for welding bands for ice cans, and tires for the larger sizes of wheelbarrow and agricultural implement wheels, and a similar line of work.

This Press can be converted into a punching, shearing and riveting Press by means of standard bed or knee, which can be fitted to the same after welding attachment has been removed. Total weight about 2,400 lbs.

Dimensions, page 103. Code Word for Press, complete as shown............

The "Toledo" No. 42 Perforating Press

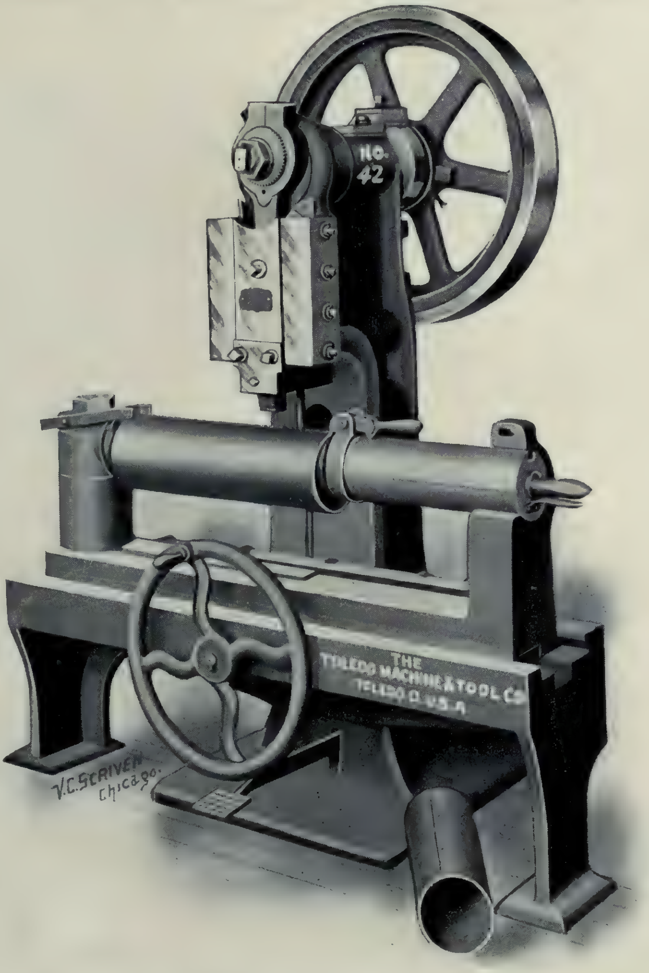


THE illustration herewith shows one of the many forms of special attachments that can be applied to this type of Press for special classes of work. The special attachments and perforating dies shown above are designed for perforating cider press drums and other cylindrical shapes which cannot be perforated until after being formed. After the drums are mounted in place and the Press is tripped, the drums are automatically rotated until the entire cylinder is perforated, when the Press stops automatically.

This attachment is fitted with an automatic indexing and feeding device, operated by pawl and ratchet. The adjustments and changes from one size to another can be easily and quickly made. Total weight about 3,000 lbs.

Dimensions, page 103. Code Word............

The "Toledo" No. 42 Press, with Pipe Riveting Attachment



THIS Special Pipe Riveting Attachment is securely attached to frame of Press and provided with end supports resting on floor as shown. Top carriage operates in bed, and is fed from end to end by means of rack and pinion operated by press slide or hand wheel. A special ratchet can be attached to back of slide, spaced to suit distance between centers of rivets on tubes to be riveted, so that when Press is started for riveting at one end of the tube, the carrier is fed the entire distance automatcially, a rivet being headed at each stroke of Press; in this way Press is kept constantly in motion while riveting and swaging the complete seam.

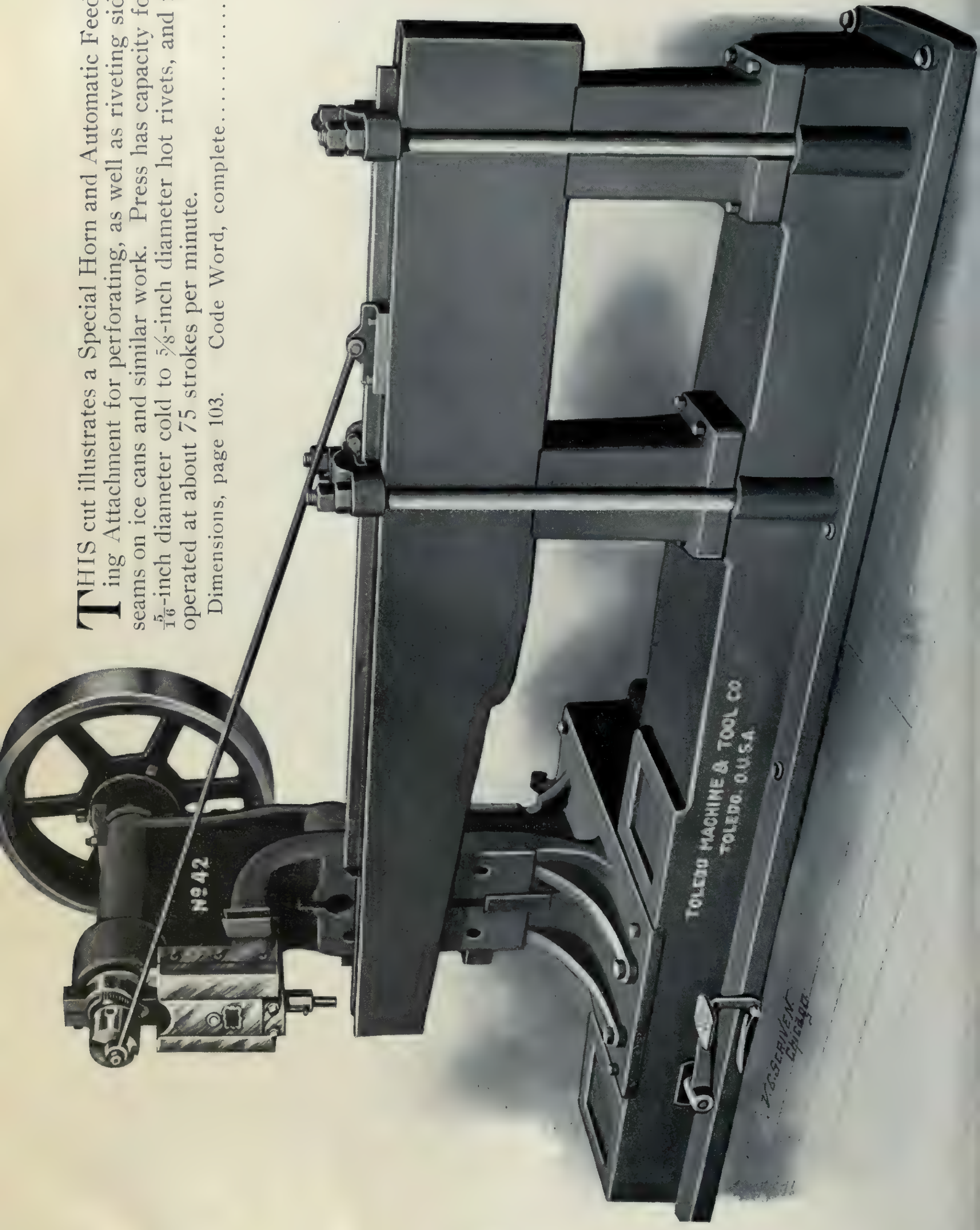
Top punch is so constructed that outside lap or seam can be forced or swaged down to make tube perfectly round and smooth inside, all in one operation. This Press is particularly adapted to riveting cream cans, heavy pipe for furnace manufacturers and for a similar line of work. Total weight about 3,000 lbs.

Dimensions, page 103. Code Word, complete as shown...........

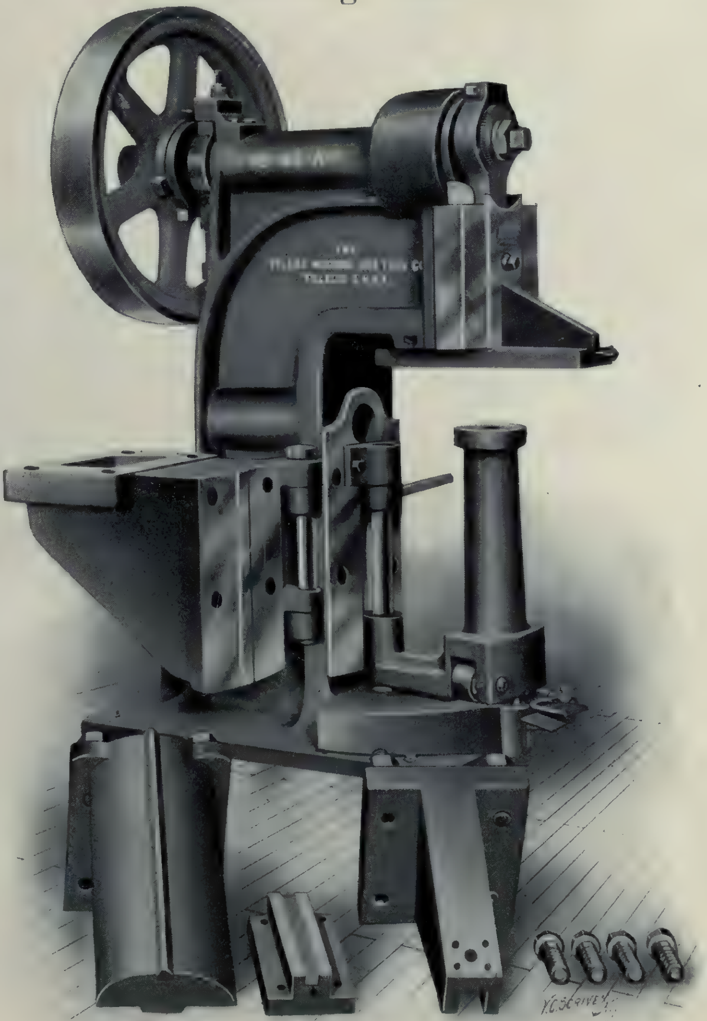
The "Toledo" No. 42 Special Riveting Press

THIS cut illustrates a Special Horn and Automatic Feeding Attachment for perforating, as well as riveting side seams on ice cans and similar work. Press has capacity for $\frac{5}{16}$-inch diameter cold to ⅝-inch diameter hot rivets, and is operated at about 75 strokes per minute.

Dimensions, page 103. Code Word, complete..........



The "Toledo" No. 43-A Deep Gap Blanking, Horning and Riveting Press



PRESS as illustrated above is fitted with detachable swinging bed or knee, with frame bored for receiving horn; also with special attachments designed for cutting and perforating bottoms in ash cans. The pedestal is swung in and out of position, in this manner enabling the operator to place long cans in position and remove them conveniently when perforating and clinching the bottoms.

Illustration also shows special fixtures which can be fitted to Press for perforating and seaming. Total weight about 5,000 lbs.

Dimensions, page 103. Code Word............

The "Toledo" No. 44 Riveting and Punching Press

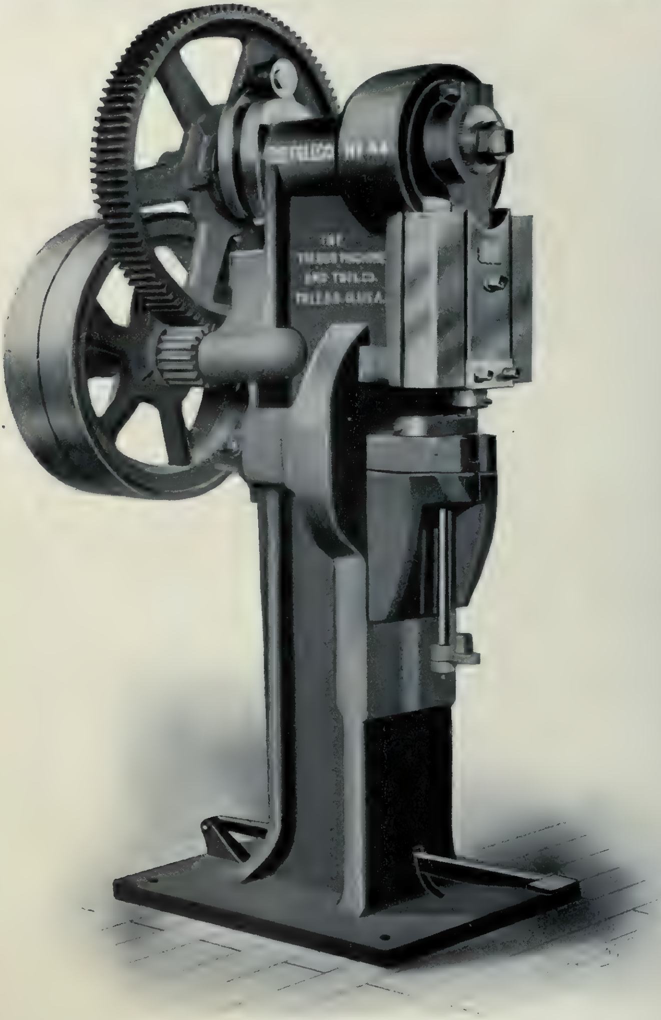


ILLUSTRATION shows our automatic clamping device with die holder and dies applied to No. 44 Press. This attachment is made to form the shoulder on spoke under tire or rim and, at the same operation or stroke, tightly rivet the spoke into rim or tire, making the head of the rivet on the outer surface flush with the tire, or a raised head as desired.

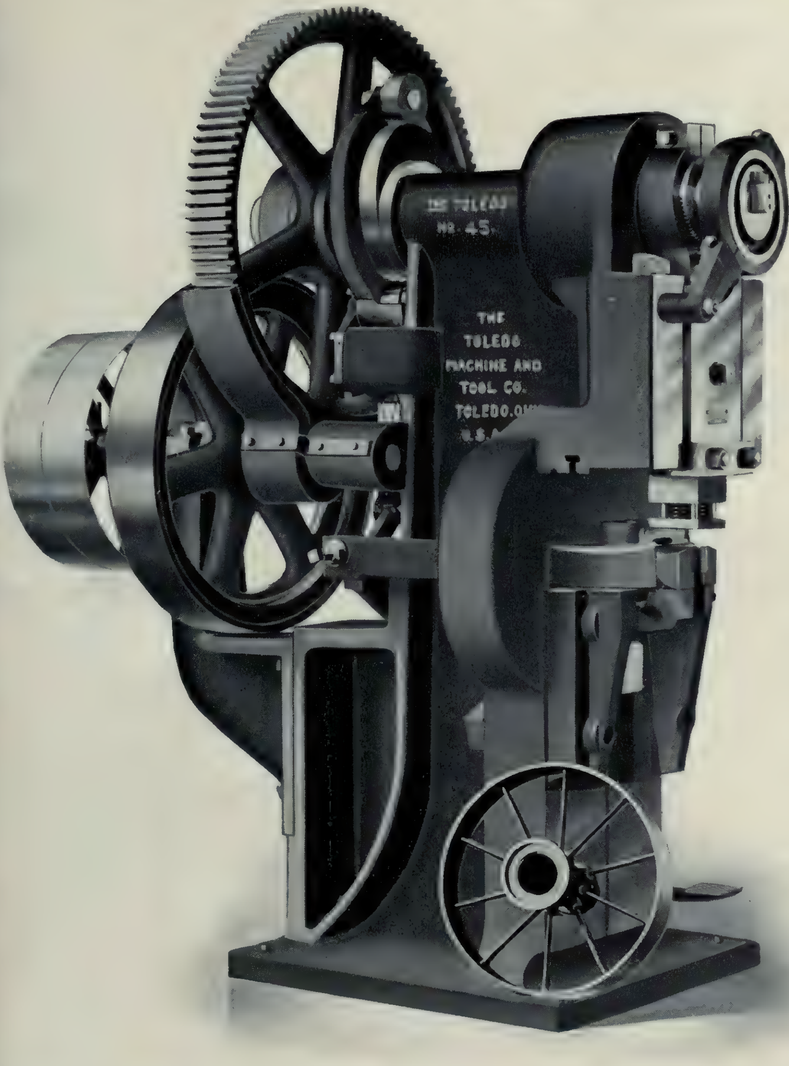
This machine is specially adapted to the requirements of manufacturers of metal wheels for agricultural implements, wagons, wheelbarrows, etc.

Detachable bed, shown in cut, enables the Press to be used as an ordinary punching, shearing and forming Press, as the special automatic attachments are easily and quickly removed. Total weight about 5,000 lbs.

Dimensions, page 103

Code Word, Geared Press bored for horn only.........
Code Word, complete as shown.........................

The "Toledo" No. 45 Riveting Press, Geared



THE illustration herewith shows our new heavy pattern Upsetting and Riveting Press. This Press is similar in design and operation to the No. 44 Riveting and Punching Press shown on page 124, but will do considerably heavier work, having capacity for upsetting cold spokes ¾-inch in diameter or hot 1-inch in diameter. Presses Nos. 41 to 45 can all be fitted with attachments, such as are shown above, to accommodate work for the different diameters of rims, or spokes for wheels of go-carts, steel wagons, etc. When the special riveting knee is removed, Press can also be used for blanking, perforating or forming work in connection with our standard knee, horns or other fixtures. Total weight about 10,000 lbs.

Dimensions page 103. Code Word............

The "TOLEDO" Boilermakers' Punching and Riveting Presses

Nos. 121 and 121-A.

THESE machines are designed for perforating rivet holes and upsetting the rivets in side seams and ends of tanks, kitchen or range boilers, air brake tanks and similar work.

The horns are made of forged steel and the Presses fitted with heavy tie rods, and with adjustable rods and roller arms for carrying the work. The slide head is provided with an adjustment concealed by a sliding plate in the front; this adjustment is for raising and lowering the slide to suit riveting or punching.

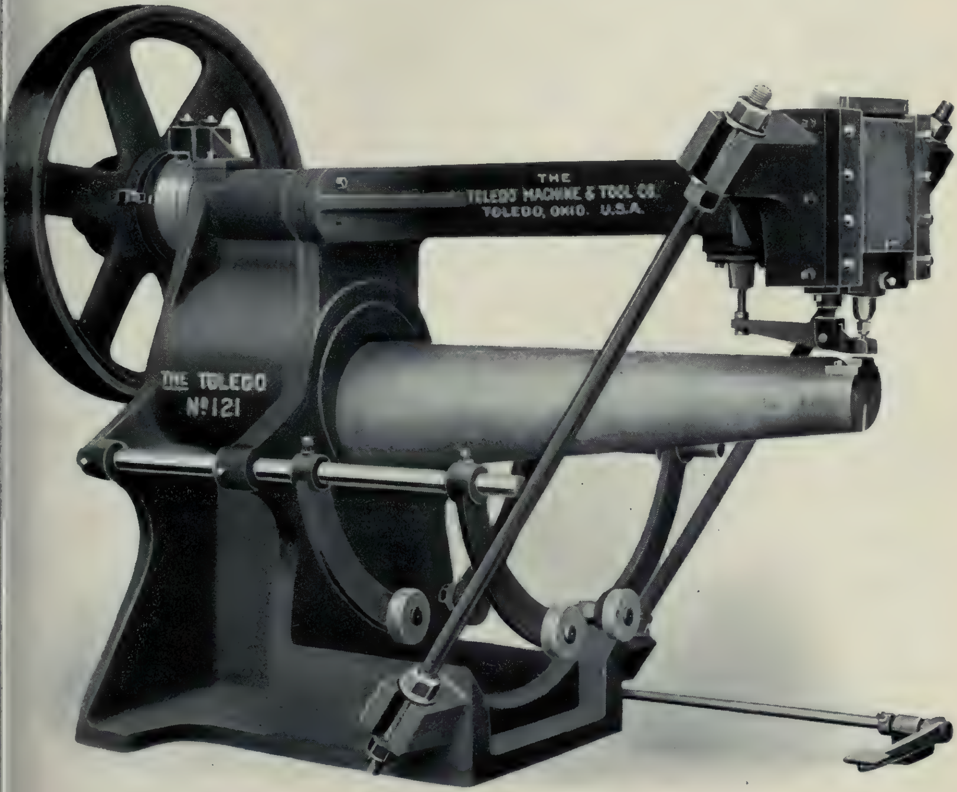
The crank bearing is bushed with prosphor bronze.

The automatic clutch mechanism is of our latest pattern and the most durable in use.

RANGE BOILER RIVETING PRESSES

Number of Press	121-A	121
Old Number	101	
Page of Catalogue		127
Code Word		
Price complete	$........	$........
Weight, about ... pounds	11000	14000
Length of horn from center of slide back ... inches	72	61
Diameter of large part of horn ... inches	10½	15
Distance top of horn to bottom of slide ... inches	8½	8¼
Diameter and face of flywheel ... inches	50 x 7	50 x 7
Weight of flywheel ... pounds	1350	1350
Speed of flywheel ... R. P. M.	80	80
Distance floor to center of horn ... inches	29	41
Floor space, F. to B., R to L ... inches	122 x 52	110 x 52
Distance between rods ... inches	31	41
Diameter of largest cylinder ... inches	28	40
Standard stroke of slide ... inches	1½	1½

The "Toledo" No. 121 60-inch Punching and Riveting Press



THIS illustration represents one of several sizes of machines we build in this style, with distance back from slide center and horns projecting up to and including 72 inches. These Presses are especially adapted to punching as well as riveting cylinders and cylinder-heads for range boilers, and a great variety of other work. Total weight about 14,000 lbs.

Description and dimensions, page 126. Code Word...........

The "Toledo" Armature Disc Notching Presses

Nos. 12, 131-A, 133 and 135.

THE No. 12 Press shows a simplified form of the lower priced indexing mechanism for armature discs. This form of attachment requires an indexing plate for each size of disc to be notched and where the range of sizes is limited, this form of notching Press is very popular. The indexing mechanism is provided with a positive automatic locking pawl. The Press can be run at a high rate of speed with the greatest accuracy insured in the spacing and notching of the discs.

The illustration of No. 131 Press shows our latest pattern of Universal Disc Notching Machine. This Press is fitted with a change gear mechanism providing, in this way, a means for obtaining an adjustment for a wide range of disc notching, with capacity for notching discs from 6 inches to 60 inches in diameter.

Furnished as a plain belt-driven machine, or with motor as shown.

No. 133 Horizontal Indexing and Punching Machine is a special type designed for indexing and punching, or slotting rings or frames for steam turbines.

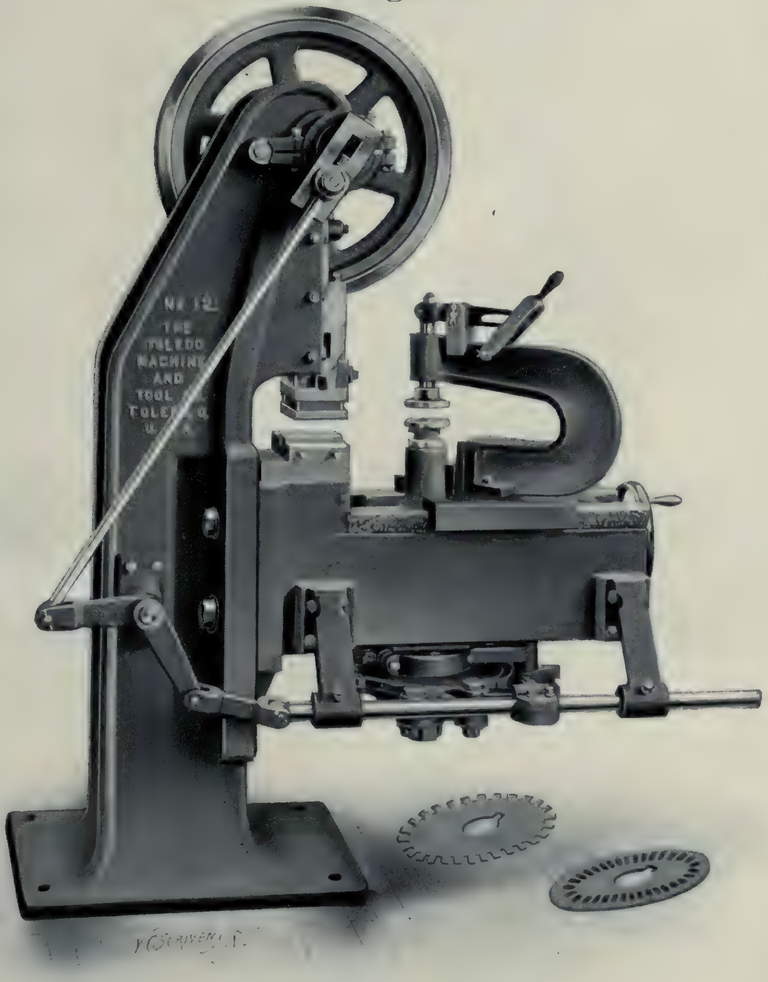
This machine has capacity for indexing and notching rings, or other work from 12 inches to 96 inches in diameter, and is adapted to a wide range of special work of this character.

No. 135 Horizontal Indexing and Punching Machine is designed for perforating rivet holes in tank heads and similar work from 24 inches to 60 inches diameter.

The change gear indexing mechanism permits obtaining almost an indefinite number of spacings.

Number of Machine	12	131	131-A	133
Page of Catalogue	129	130	......	131
Code Word				
Price complete with change gears for 96 teeth	$.....	$.....	$.....	$......
Weight, about ... pounds	2100	4250	5000	......
Distance back from center of slide . inches	6	16	16	......
Distance bed to slide, stroke and adjustment up ... inches	16 max.	7	7	......
Area of bed, F. to B., R. to L. ... inches	10 x 7½	12 x 5	12 x 5	......
Area of opening in bed, F. to B., R. to L. ... inches	......	3½ x 2	3½ x 2	......
Largest disc that can be notched, diameter ... inches	25	96	75 rad.	124
Smallest disc that can be notched with offset punch ... inches	6	8	18	......
Smallest disc that can be notched without offset punch ... inches	8	10	20	12
Largest number of notches that can be cut with single punch ...	120	600	......	1600
Smallest number of notches that can be cut ...	8	25	......	30
Size of flywheel ... inches	24 x 3½	26x 3½	26 x 3½	22 x 3½
Weight of flywheel ... pounds	250	300	300	175
Number of strokes, per minute ...	150	150	150	150
Floor space over all, F. to B., R. to L. ... inches	30 x 54	40 x 128	40 x 128	40 x 128

The "Toledo" No. 12 Press With Automatic Indexing Mechanism for Notching Armature Discs and Segments



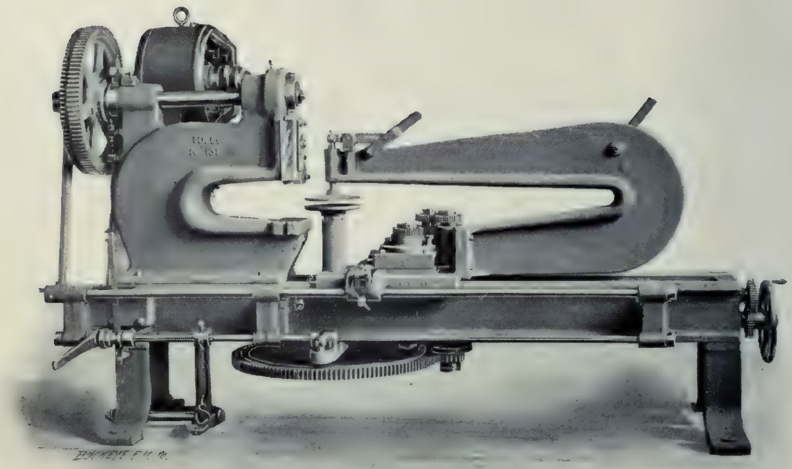
THE attachments shown with Press, as illustrated above, are specially suited for medium and small discs where it is necessary to produce duplicate work in large quantities.

After locating the disc and tripping the clutch, the Press operates continuously until the entire disc is notched, when the clutch is automatically disengaged and the Press stopped.

Press is fitted with automatic locking pawl, and is suited for discs 28 inches in diameter and smaller. Total weight about 2,100 lbs.

General description, page 128. Dimensions, page 128. Code Word...........

The "Toledo" No. 131 Armature Disc Indexing and Notching Machine

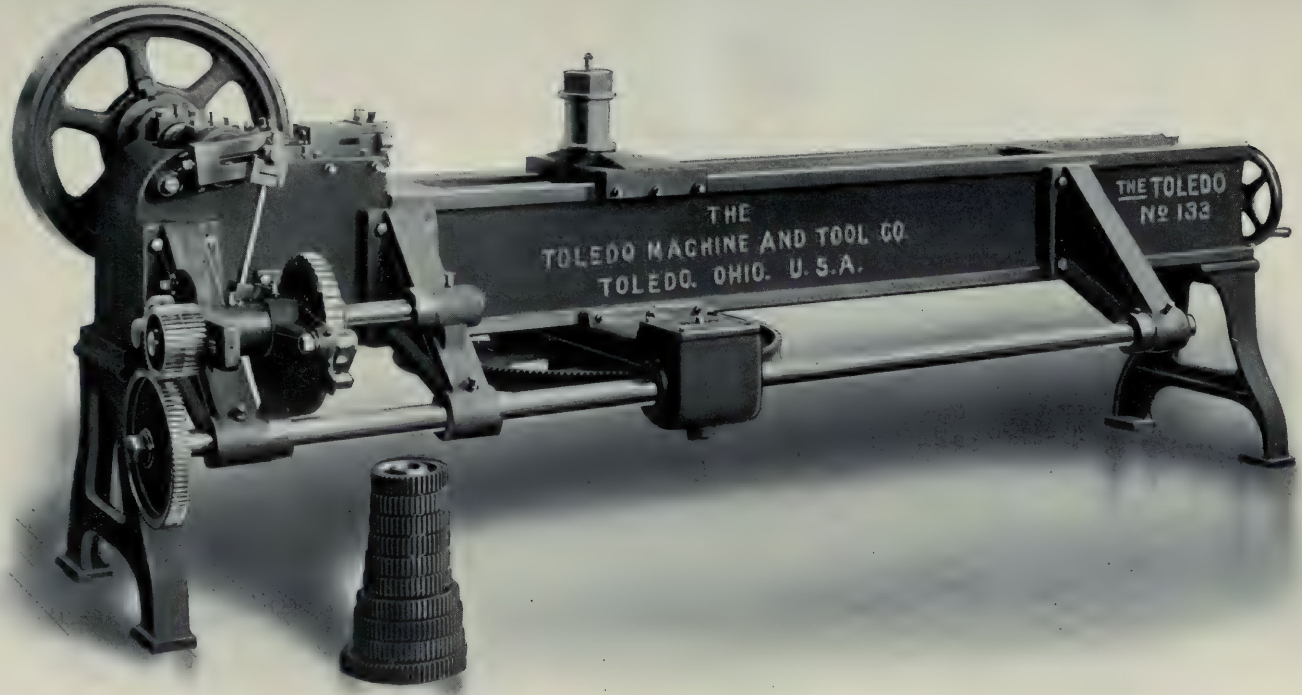


DIRECT connected motor-drive is shown on this Armature Disc Indexing and Notching Machine as illustrated above. Disc notching attachments can be removed and replaced with segment notching attachments; or, with all attachments removed, machine can be used for single punching work.

Change in gears is easily and quickly accomplished for any desired number of notches.

Press will accommodate small, medium and large work, and can be operated at a high rate of speed, giving, at the same time, the most accurate results. Furnished with or without motor-drive. Total weight about 5,000 lbs.

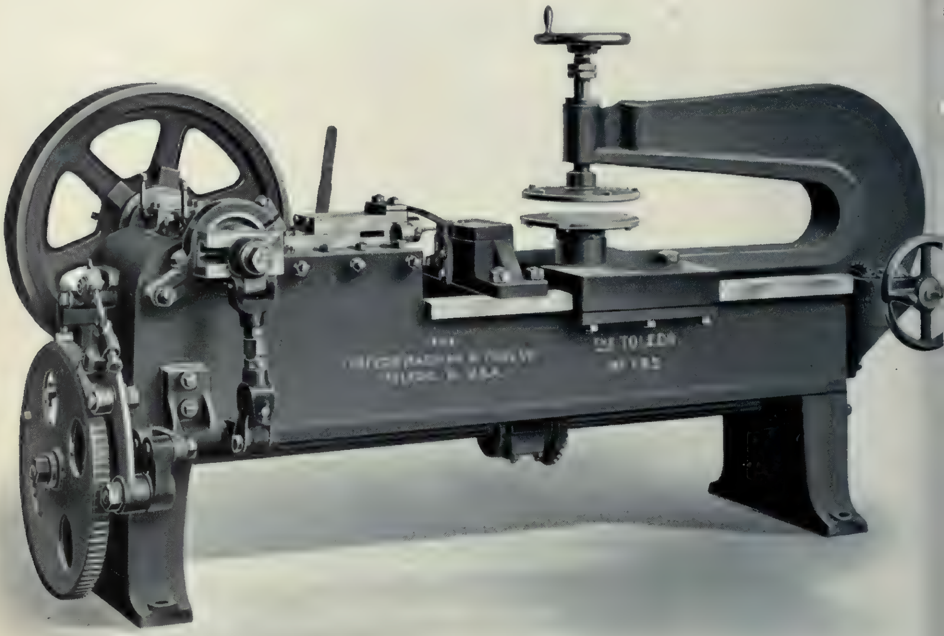
Dimensions, page 128. Code Word............



The "Toledo" No. 133 Horizontal Indexing and Notching Press

General description, page 128. Dimensions, page 128. Code Word...........

The "Toledo" No. 135 Perforating and Notching Press



THIS machine, as shown above, is designed and used for automatically perforating rivet holes in steel tank heads, and for perforating and notching similar work ranging in diameter from 24 inches to 60 inches.

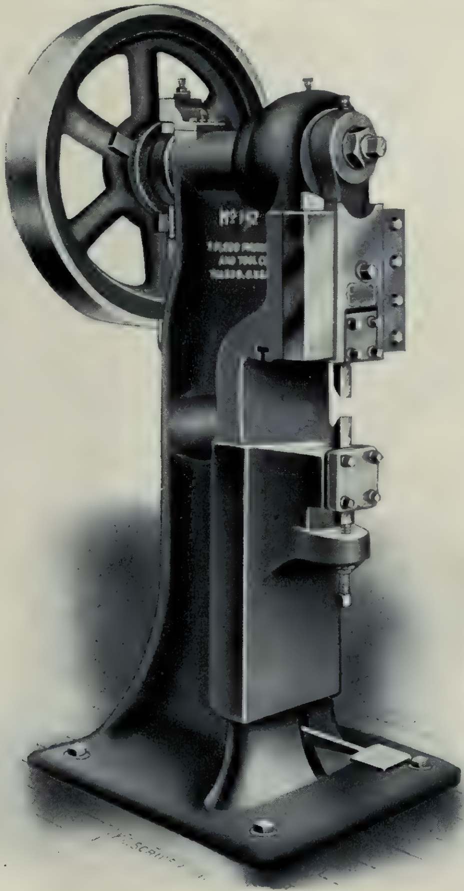
After the work is clamped in place, Press is tripped, perforating one hole at a time until the entire disc or head is perforated, when the clutch is automatically disengaged.

DIMENSIONS

Stroke or motion of slide	1½ inches
Depth of gap of clamping arm	31 inches
Capacity for discs, diameter	24 x 60 inches
Weight of balance wheel	350 pounds
Size of balance wheel	28 x 4 inches
Speed, revolutions per minute	100
Total weight complete, about	3,500 lbs.
Code Word	

The "Toledo" Brass Founders' Sprue Cutter

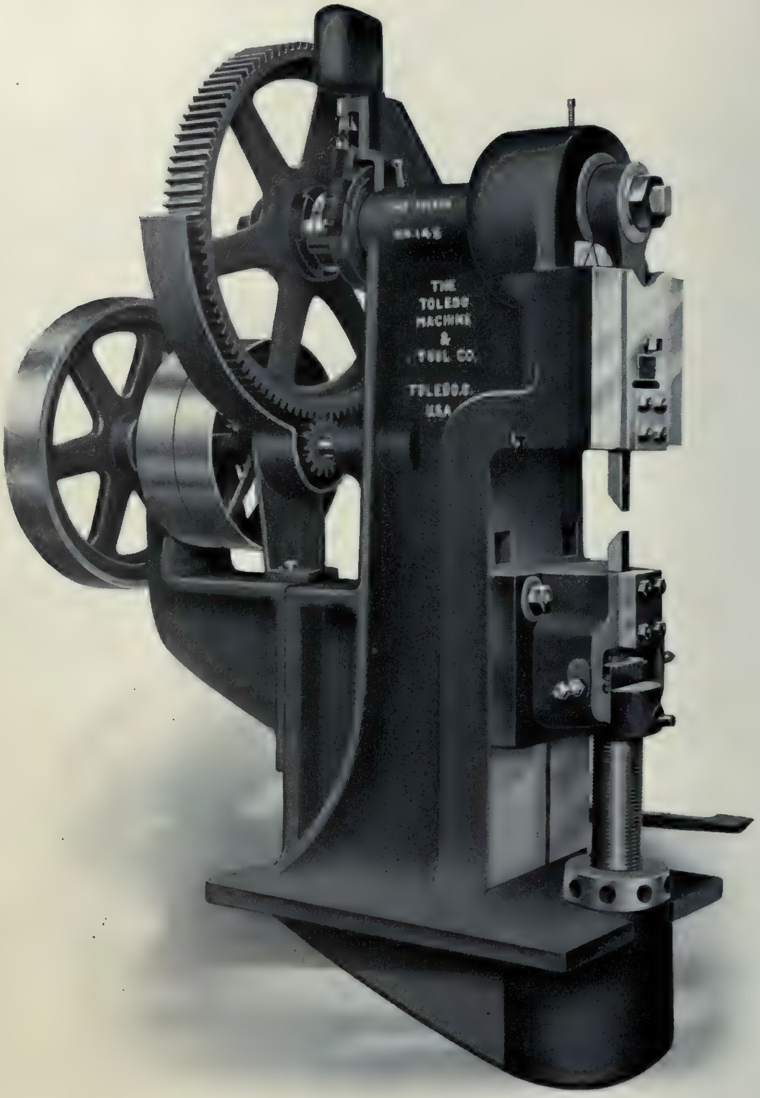
Nos. 141, 142, 143 and 145



THIS illustration shows the general design and appearance of our Sprue Cutters, designed for the use of founders and Britannia manufacturers for cutting brass, steel and other castings.

Number of Machine	141	142	143	145
Code Word				
Price plain with cutters	$....	$....	$....	$....
Weight, about ... pounds	1300	2050	3700	....
Will cut off gates—round (brass) ... inches	¾	1	1¼	1¾
Will cut off gates—flat (brass) ... inches	⅜ x 1½	½ x 2	⅝ x 2½	¾ x 4
Distance back from cutter to frame ... inches	5½	6	7	8½
Dis. between cutter holder (slide down) ... in.	4	5	5½	10
Size of flywheel ... inches	26 x 3½	32 x 5½	38 x 6	50 x 7
Weight of flywheel ... pounds	300	550	850	1350
Speed of flywheel ... R. P. M.	100	100	90	80
Size of cutters, thickness and width ... inches	⅝ x 1¼	¼ x 1½	1 x 2	3 x 2¼
Floor space of base, F. to B., R. to L. inches	26 x 22	30 x 26	38 x 28	44 x 34
Floor space over all, F. to B., R. to L. .inches	32 x 26	34 x 32	40 x 38	54 x 50
For gearing, etc., see Press	31	32	33	35

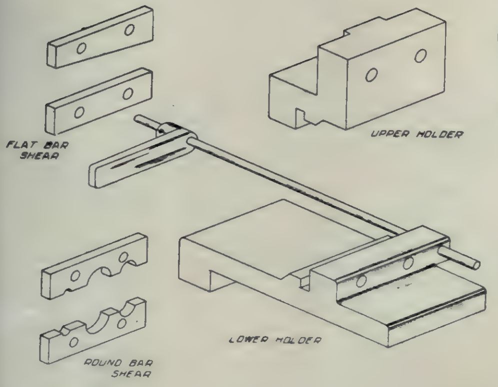
The "Toledo" No. 145 Sprue Cutter, Geared



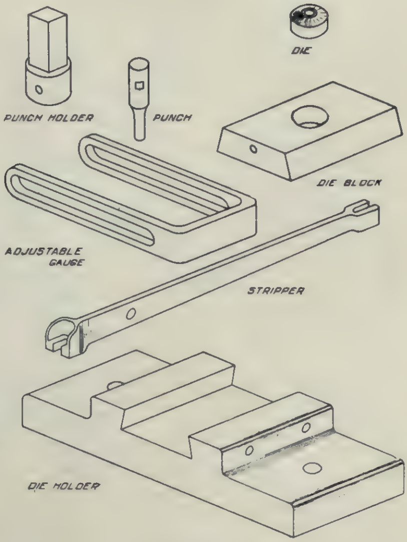
THIS machine, as shown above, has capacity for trimming or cutting sprues of steel and other castings up to 1½ inches diameter. The special holders and blades for sprue cutting can be easily and quickly removed and regular screw adjustable bed attached to frame for a line of regular blanking and forming work. Total weight about ...... lbs.

Dimensions, page 133. Code Word............

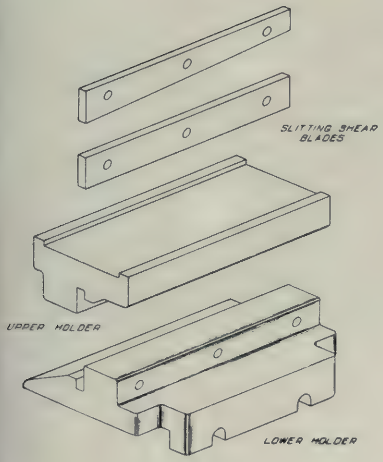
A Few Forms of Holders



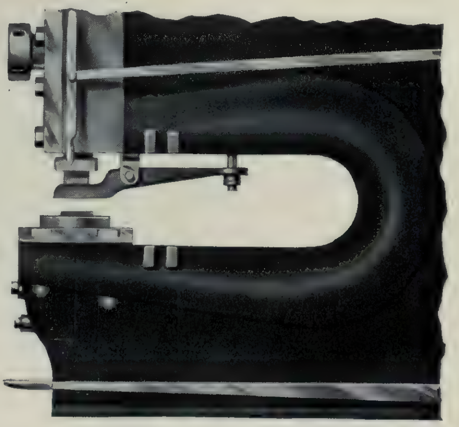
Shears



Punches



Slitting Shear



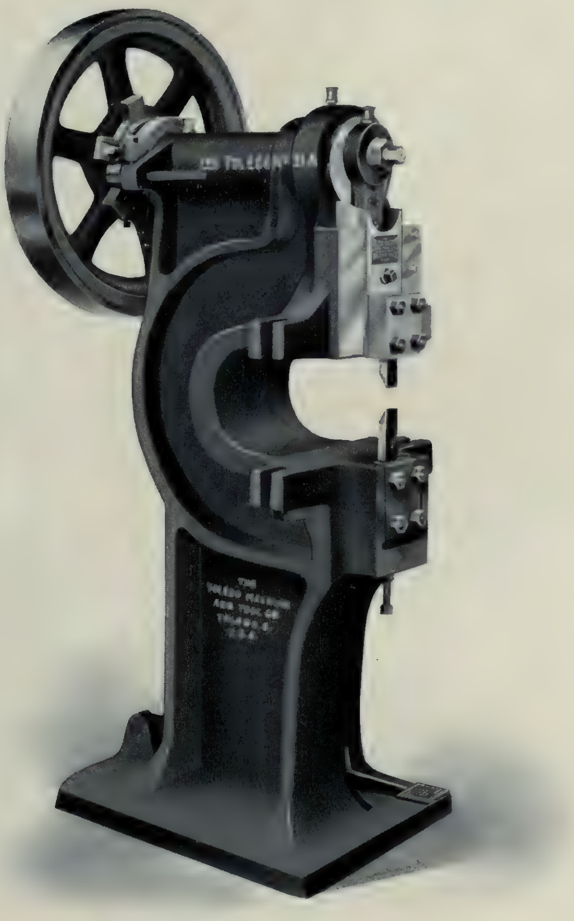
Punch and Shear

THESE illustrations show a few only of the many forms of Holders, also the shear blades, slitting shears and punches, dies, adjustable gauges, strippers, and the method of attaching same to Presses that may be used in structural iron, bridge and architectural work, as well as other lines of punching and shearing.

The "Toledo" Single Punching and Shearing Machines

No. of Machine	Price	Code Word	Weight Pounds	Depth of Gap Inches	Punching Capacity Inches	Shearing Capacity Round Inches	Shearing Capacity Flat Inches	Floor Space of Base F to B R to L Inches	Floor Space Over All F to B R to L Inches
31-A	$.....	......	2100	12	9/16x⅜	¾	2x⅜	30x22	46x26
31-B	$.....	......	2400	16				32x22	50x26
31-C	$.....	......	2900	24				40x22	58x26
31-D	$.....	......	3500	30				48x22	66x26
31-E	$.....	......	4200	36				56x22	74x26
31-F	$.....	......	5000	48				68x22	88x26
32-A	$.....	......	2900	12	11/16x½	1	2½x½	30x28	44x28
32-B	$.....	......	3600	18				36x28	50x28
32-C	$.....	.....	4600	24				44x28	58x28
32-D	$.....	......	5700	30				52x28	66x28
32-E	$.....	......	6800	36				60x28	74x28
32-F	$.....	......	8000	48				72x28	86x28
33-A	$.....	.....	3800	12	¾x⅝	1¼	3x⅝	33x28	50x32
33-B	$.....	......	4700	18				40x28	56x32
33-C	$.....	......	5600	24				48x28	64x32
33-D	$.....	......	6800	30				56x28	72x32
33-E	$.....	......	8000	36				64x28	80x32
33-F	$.....	.....	9400	48				76x28	94x32
34-A	$.....	.....	4900	9	⅞x⅞	1½	4x¾	38x32	54x35
34-B	$.....	......	6000	16				46x32	62x36
34-C	$.....	......	7100	24				56x32	75x36
34-D	$.....	......	8300	30				64x32	80x40
34-E	$.....	......	10300	36				72x32	90x40
34-F	$.....	......	14000	48				82x32	108x40
35-A	$.....	......	8500	12	1x1	1¾	4x⅞	44x34	75x42
35-B	$.....	......	9600	18				52x34	84x42
35-C	$.....	......	11000	24				62x34	94x42
35-D	$.....	......	12600	30				72x34	106x42
35-E	$.....	......	14500	36				80x34	118x42
35-F	$.....	......	18200	48				94x34	132x42
36-A	$.....	......	12500	12	1½x1	2	5x1	48x38	82x48
36-B	$.....	......	14000	18				56x38	90x48
36-C	$.....	......	16200	24				64x38	98x48
36-D	$.....	......	19000	30				72x38	106x48
36-E	$.....	......	23000	36				80x38	114x48
36-F	$.....	......	28300	48				96x38	130x48
37-A	$.....	......	15600	12	1¾x1¼	2½	7x1¼	51x42	87x54
37-B	$.....	......	17400	18				59x42	95x54
37-C	$.....	......	19400	24				67x42	103x54
37-D	$.....	......	22600	30				75x42	111x54
37-E	$.....	......	26600	36				83x42	119x54
37-F	$.....	......	34000	48				99x42	135x54
38-A	$.....	......	19500	12	2½x1¼	2¾	8x1¼	54x46	92x60
38-B	$.....	......	21800	18				62x46	100x60
38-C	$.....	......	25000	24				70x46	108x60
38-D	$.....	......	28500	30				78x46	116x60
38-E	$.....	......	32500	36				86x46	124x60
38-F	$.....	......	40000	48				102x46	140x60
39-A	$.....	......	23400	12	2¾x1½	3	8x1½	57x52	97x66
39-B	$.....	......	26500	18				65x52	105x66
39-C	$.....	......	31000	24				73x52	113x66
39-D	$.....	......	35500	30				81x52	121x66
39-E	$.....	......	41500	36				89x52	129x66
39-F	$.....	......	50000	48				105x52	145x66
39¼-A	$.....	......	31200	12	3½x1¾	3¾	10x1¾	60x60	106x74
39¼-B	$.....	......	35000	18				68x60	114x74
39¼-C	$.....	......	41000	24				76x60	122x74
39¼-D	$.....	......	50000	30				84x60	130x74
39¼-E	$.....	......	60000	36				92x60	138x74
39¼-F	$.....	......	72000	48				107x60	154x74

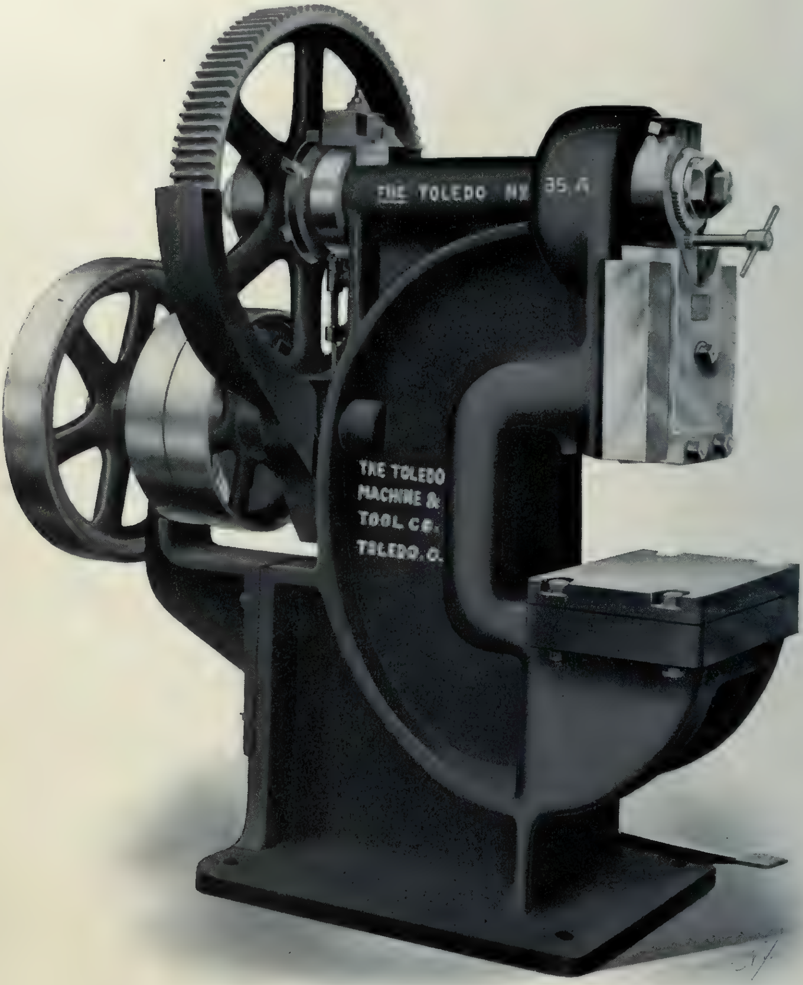
The "Toledo" No. 31-A Deep Gap Punching Press



NUMBER 31-A is adapted to shearing round and flat bars, also to perforating and cutting openings in the center of sheets 24 inches wide in the lighter gauges of metal. Can also be furnished with special beds and tools for sprue-cutting work. Total weight about 1,600 lbs.

Dimensions, page 136. Code Word...........

The "Toledo" No. 35-A Power Punching Press, Geared



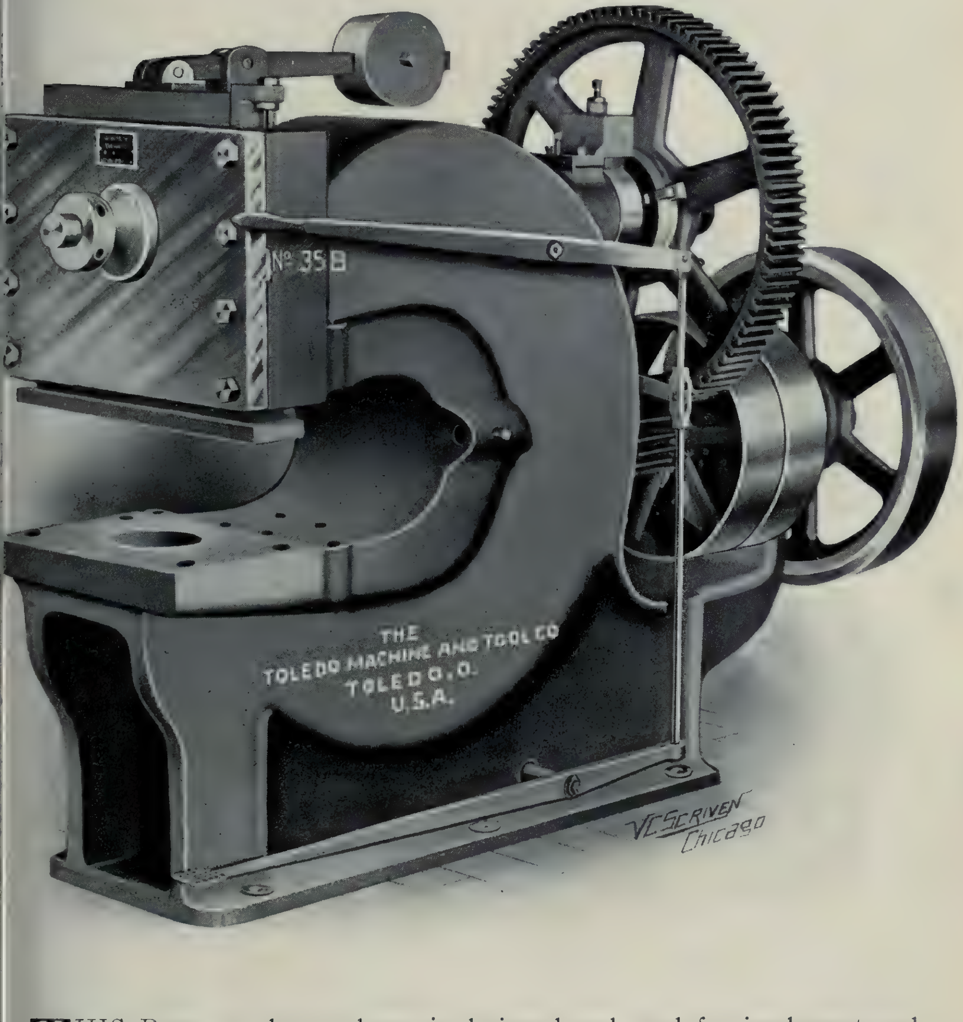
THIS Press has the same capacity as our Standard No. 35 Punching Press, but owing to its increased depth of throat and die space, is adapted to a wider range of work.

This Press is widely used by manufacturers of automobile parts and other heavy stamped metal articles. Total weight about 8,550 lbs.

Dimensions, page 136. Code Word............

The "Toledo" No. 35-B Single Punch and Shear, Geared (Old No. 5)

(Patented)

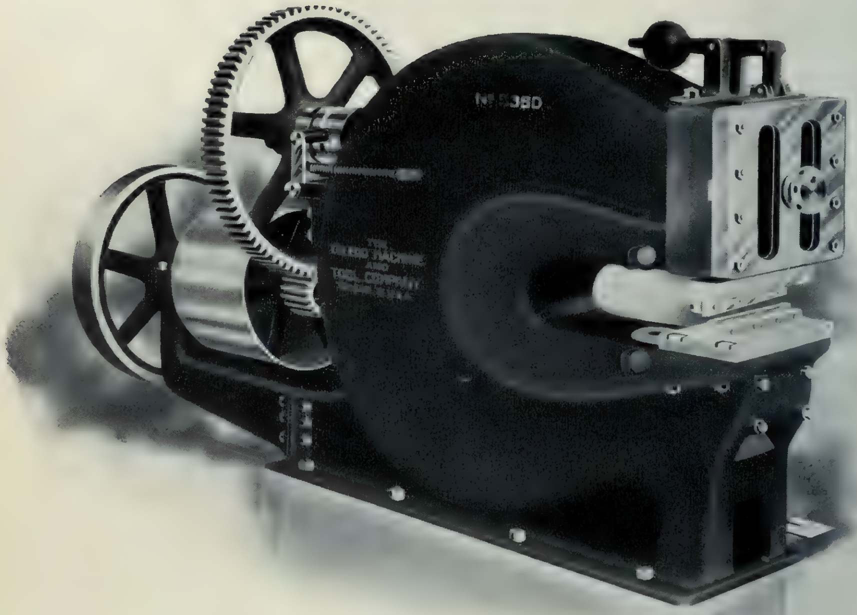


THIS Press, as shown above, is designed and used for implement and wheel work, boiler and other large and heavy work where accurate punching is necessary. We build this Press in various sizes, furnished with shears for cutting angles, T's, channels, flat, square or round bars, or arranged for slitting and punching as required. Bed of special shape for coping and punching I-beams, channels, angles, etc., is shown in illustration. Total weight about 7,900 lbs.

Tools, shown on page 135. Dimensions, page 136. Code Word............

The "Toledo" No. 36-D Single Punch and Shear

(Patented)



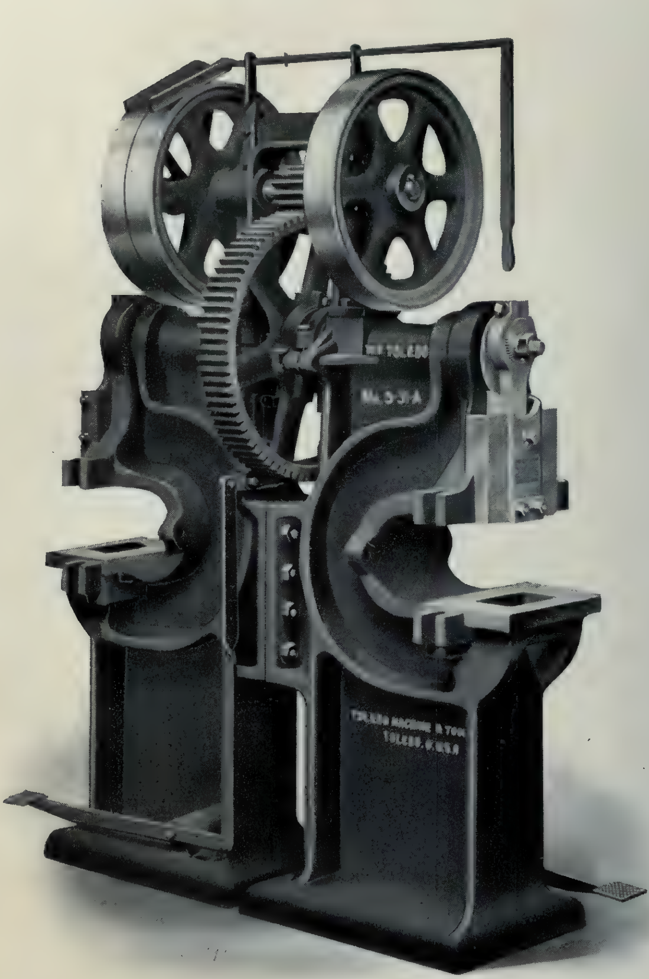
THIS represents one of our heavy Single Punching and Shearing Machines with 30-inch deep throat. These machines are made in all sizes with depth of throat varying from 6 inches to 72 inches. They can be furnished with punching tools or with shears for slitting or cutting off round, square or flat bars. Designed for use in boiler shops, bridge and car works, etc. They are thoroughly well built and up to the highest standard in every respect. For details of punching and shearing tools and attachments, see page 135.

Dimensions, page 136. Code Word as shown...........

The "Toledo" Double Punching and Shearing Machines

No. of Machine	Price	Code Word	Weight Pounds	Depth of Gap Inches	Punching Capacity Inches	Shearing Capacity Round Inches	Shearing Capacity Flat Inches	Floor Space of Base F to B R to L Inches	Floor Space Over All F to B R to L Inches
D-31-A	$.....	......	4400	12	⁹⁄₁₆x⅜	¾	2x⅜	57x22	70x28
D-31-B	$.....	......	5000	16				70x22	82x28
D-31-C	$.....	......	5800	24				84x22	96x28
D-31-D	$.....	......	6800	30				98x22	110x28
D-31-E	$.....	......	7900	36				112x22	126x28
D-31-F	$.....	......	9100	48				140x22	156x28
D-32-A	$.....	......	5000	12	¹¹⁄₁₆x½	1	2½x½	56x28	72x34
D-32-B	$.....	......	6300	18				68x28	84x34
D-32-C	$.....	......	7800	24				80x28	98x34
D-32-D	$.....	......	9600	30				94x28	112x34
D-32-E	$.....	......	11800	36				108x28	126x34
D-32-F	$.....	......	14000	48				138x28	156x34
D-33-A	$.....	......	6500	12	¾x⅝	1¼	3x⅝	66x28	92x32
D-33-B	$.....	......	7800	18				78x28	106x32
D-33-C	$.....	......	9000	24				92x28	120x32
D-33-D	$.....	......	11600	30				106x28	134x32
D-33-E	$.....	......	13800	36				120x28	148x32
D-33-F	$.....	......	16000	48				150x28	178x32
D-34-A	$.....	......	8000	9	⅞x⅞	1½	4x¾	82x32	92x40
D-34-B	$.....	......	10500	16				96x32	106x40
D-34-C	$.....	......	12200	24				110x32	120x40
D-34-D	$.....	......	15000	30				124x32	134x40
D-34-E	$.....	......	20000	36				138x32	148x40
D-34-F	$.....	......	24800	48				168x32	178x40
D-35-A	$.....	......	15500	12	1x1	1¾	4x⅞	90x34	106x48
D-35-B	$.....	......	17500	18				104x34	120x48
D-35-C	$.....	......	20000	24				118x34	134x48
D-35-D	$.....	......	23000	30				132x34	148x48
D-35-E	$.....	......	27500	36				146x34	162x48
D-35-F	$.....	......	33800	48				176x34	192x48
D-36-A	$.....	......	21000	12	1½x1	2	5x1	102x38	122x62
D-36-B	$.....	......	26000	18				116x38	136x62
D-36-C	$.....	......	29000	24				130x38	150x62
D-36-D	$.....	......	34000	30				144x38	164x62
D-36-E	$.....	......	41000	36				158x38	178x62
D-36-F	$.....	......	50000	48				188x38	208x62
D-37-A	$.....	......	28000	12	1¾x1¼	2½	7x1¼	106x42	128x66
D-37-B	$.....	......	31500	18				120x42	142x66
D-37-C	$.....	......	35000	24				134x42	156x66
D-37-D	$.....	......	40000	30				148x42	170x66
D-37-E	$.....	......	50000	36				162x42	184x66
D-37-F	$.....	......	62000	48				192x42	214x66
D-38-A	$.....	......	34000	12	2½x1¼	2¾	8x1¼	110x46	134x70
D-38-B	$.....	......	37500	18				124x46	148x70
D-38-C	$.....	......	44000	24				138x46	162x70
D-38-D	$.....	......	50000	30				152x46	176x70
D-38-E	$.....	......	60000	36				166x46	190x70
D-38-F	$.....	......	70000	48				196x46	220x70
D-39-A	$.....	......	40000	12	2¾x1½	3	8x1½	114x52	142x74
D-39-B	$.....	......	45000	18				128x52	156x74
D-39-C	$.....	......	53800	24				142x52	170x74
D-39-D	$.....	......	60600	30				156x52	184x74
D-39-E	$.....	......	70000	36				172x52	198x74
D-39-F	$.....	......	82000	48				202x52	228x74
D-39¼-A	$.....	......	56000	12	3½x1¾	3¾	10x1¾	118x60	150x82
D-39¼-B	$.....	......	62000	18				132x60	164x82
D-39¼-C	$.....	......	70000	24				146x60	178x82
D-39¼-D	$.....	......	82000	30				160x60	192x82
D-39¼-E	$.....	......	110000	36				176x60	206x82
D-39¼-F	$.....	......	130000	48				207x60	236x82

The "Toledo" No. D-31-A Gap Punching Press

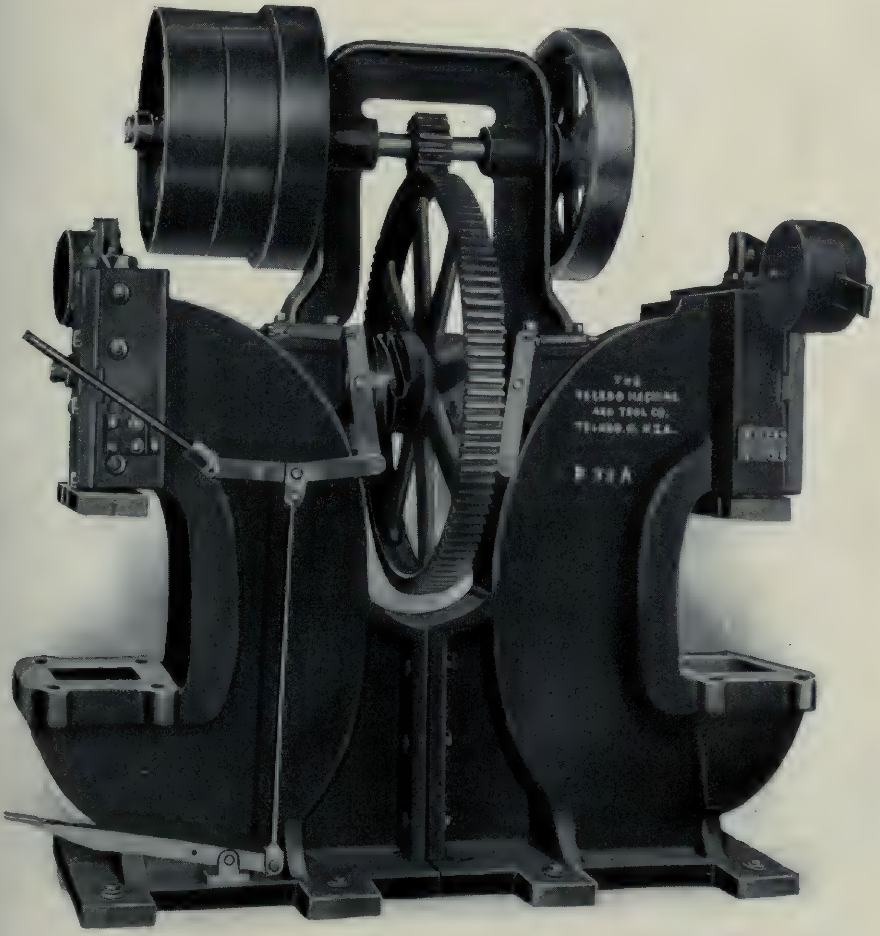


THE above illustration shows a double end Press of No. 31-A size, which is adapted to perforating, shearing and forming angles, flats and other shapes for windmill, agricultural implement and ornamental iron work.

Dimensions, page 141. Code Word...........

The "Toledo" No. D-35-A Double Punch and Shear (Old No. 235)

(Patented)

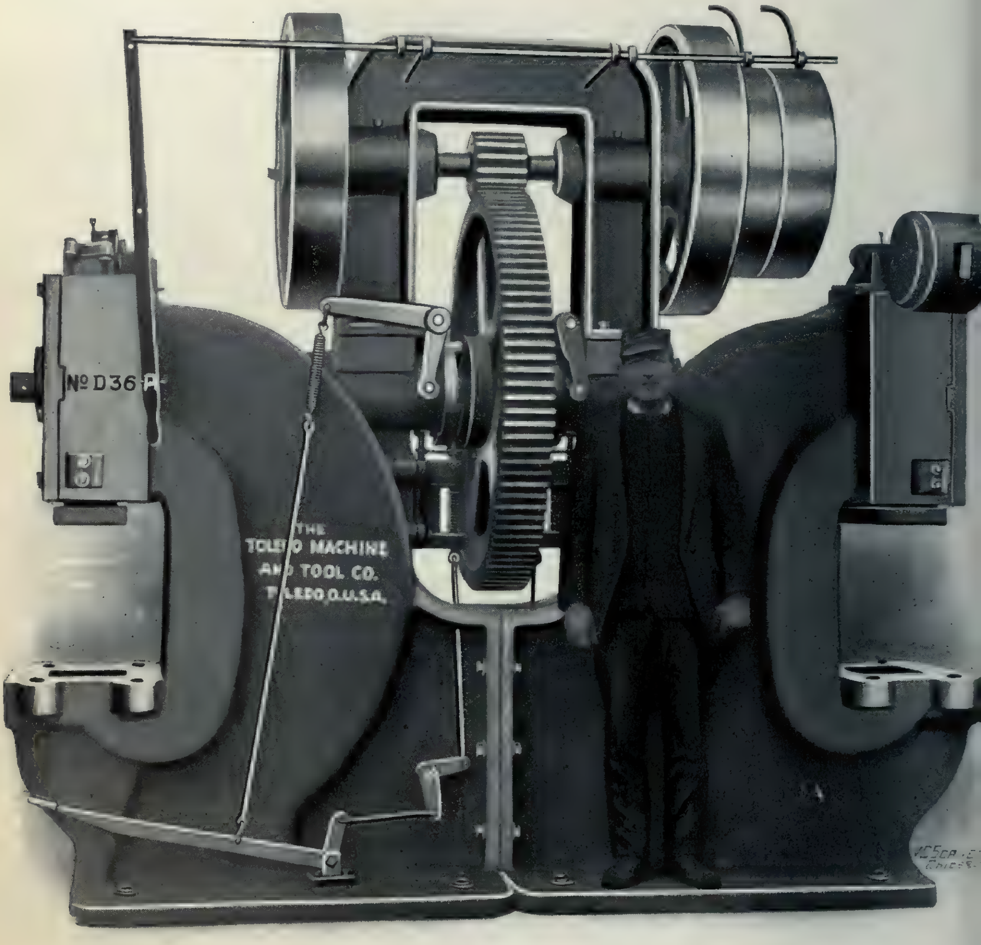


THE Punching and Shearing Machine, represented in illustration above, we build in different sizes, and with different depths of throat combined in same machine, if desired. Each side can be operated independently of the other, or at once. Either side will do the same amount of work as a single machine. This double type of punch and shear is generally used for punching and shearing, but the tools are interchangeable and the same kind of work may be done on both ends. Each double machine is provided with one set of punching and shearing tools when ordered.

Press can be built with beds of special shape, and detachable if desired, for a general line of punching, shearing, splitting, coping, etc., on I-beams, angle iron, channels, etc.

Tools, page 135. Dimensions, page 141
Code Word for Press as shown............

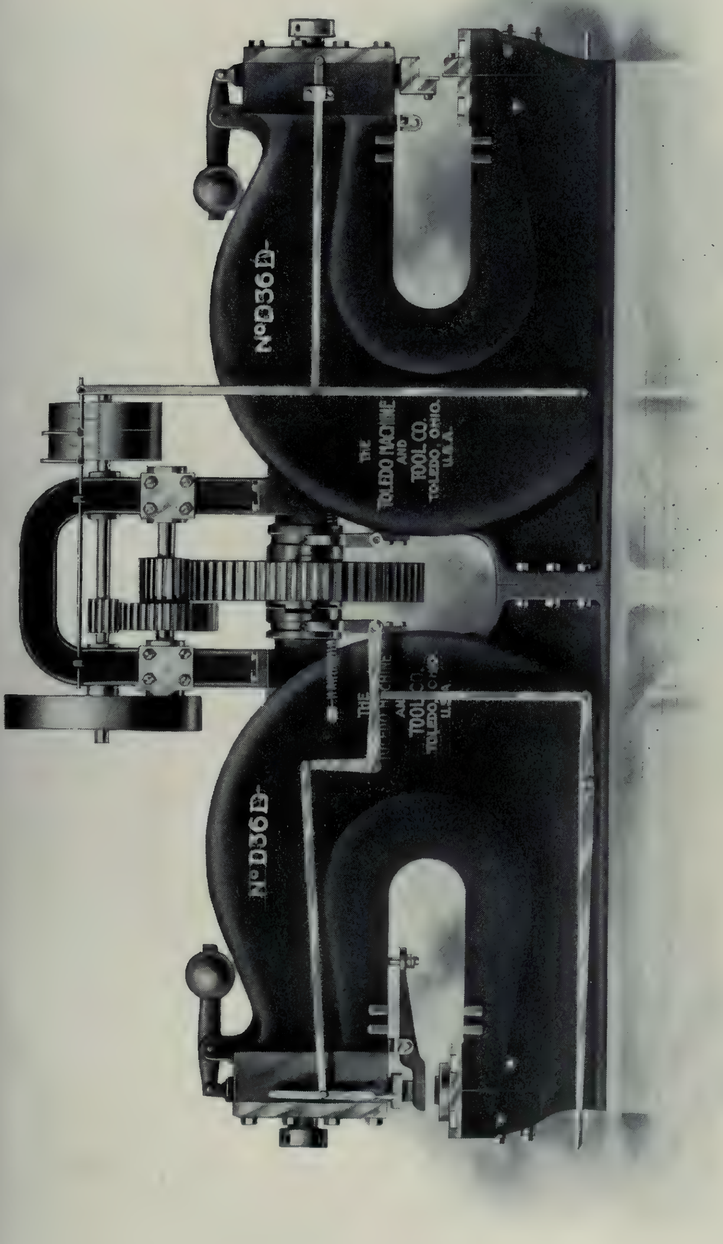
The "Toledo" No. D-36-A Double Punch and Shear
(Old No. 236)



LIKE all "Toledo" Double Punches and Shears, the machine as represented above, can be made with throats of equal or different depths as required. The respective sides are independent of each other and tools are interchangeable, so that punches or shears can be used on either or both sides.

Built with special beds, detachable, for a general line of work as mentioned on preceding page.

Tools, page 135. Dimensions, page 141
Code Word for Press as shown............


Nº D36 D
THE TOLEDO MACHINE AND TOOL CO. TOLEDO, OHIO, U.S.A.
Nº D36 D
THE TOLEDO MACHINE AND TOOL CO. TOLEDO, OHIO, U.S.A.

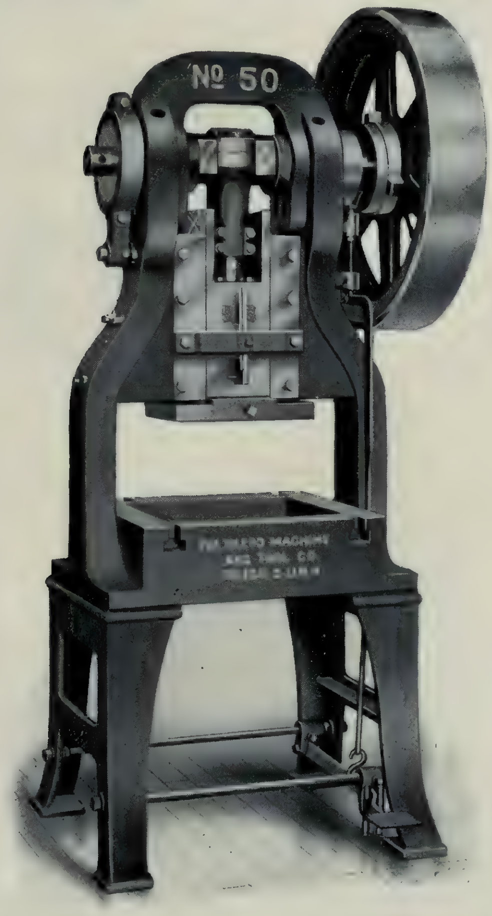
The "Toledo" No. D-36-D Double Punch and Shear
(Patented)

Tools, page 135. Dimensions, page 141. Code Word..........

The "Toledo" Blanking, Forming, Horning and Wiring Presses

Number of Press	50	50½	51	52
Old Number			52	53
Page of Catalogue	147		148	149
PLAIN PRESS — Code Word				
Price plain, including bolster and knockout in slide	$.....	$.....	$.....	$.....
Price extra for removable front	$.....	$.....	$.....	$.....
Price extra for wiring bolster plate	$.....	$.....	$.....	$.....
Weight, about ... pounds	2900	3200	4100	6200
Area of bed and bolster plate, F. to B., R. to L. ... inches	22x24	26x27	27x28	28x29
Size of flange on slide, F. to B., R. to L. ... inches	10x14	12x16	12x16	15x20
Standard opening in bed, F. to B., R. to L. ... inches	16x18	19x22	19x22	20x24
Distance between housings ... inches	24	27	28	30
Standard stroke of slide (can be changed) ... inches	2	2½	2½	2½
Adjustment of slide ... inches	2½	2½	3	3
Distance bed to slide, stroke and adjustment up ... inches	9	9	10	12
Recess in slide for punch stem, diameter ... inches	2	2	2	2
Thickness of bolster plate ... inches	2	2	2	2¼
Diameter and face of flywheel ... inches	32x5½	34x5½	36x5½	42x6½
Weight of flywheel ... pounds	550	600	800	1050
Speed of flywheel ... R. P. M.	100	100	100	90
Height from floor to center of shaft ... inches	66	68	70	75
Floor space over all, F. to B., R. to L. ... inches	34x40	40x44	40x48	44x50
Floor space of legs, F. to B., R. to L. ... inches	30x32	40x36	40x38	42x40
GEARED PRESS — Code Word				
Price	$.....	$.....	$.....	$.....
Weight, about ... pounds	3600	3900	5000	7200
Proportion of gearing, about	6:1	6:1	6½:1	6½:1
Diameter of gear ... inches	32	32	35	42
Size of balance wheel ... inches	28x4	28x4	30x5	34x5½
Weight of balance wheel ... pounds	300	300	400	600
Size of belt wheel ... inches	28x4	28x4	20x5	24x5
Speed of belt wheel ... R. P. M.	270	270	300	300
Strokes of slide ... per minute	45	45	45	45
Floor space, F. to B., R. to L. ... inches	42x52	42x56	44x64	52x72

The "Toledo" No. 50 Arch Power Press

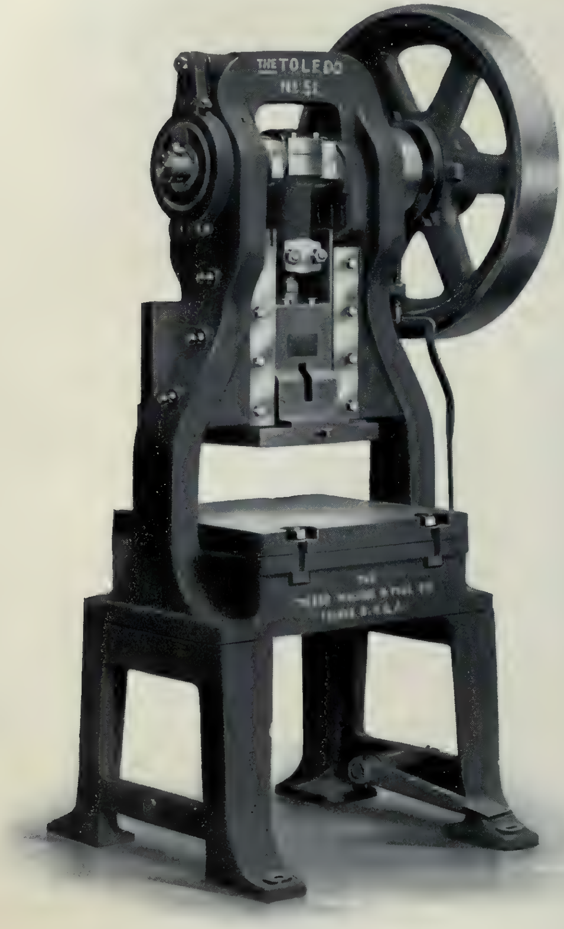


THIS size Arch Power Press, as shown in illustration above, can be furnished with upright or inclined standards, geared or plain, with or without removable front piece to bed. It is adapted to a wide range of sheet metal work, such as blanking, forming and light embossing; and when built with removable front, can also be fitted with horns and force for closing side seams on cans, canisters, pails, buckets, etc.

A sunken bolster with sliding plate, as shown on page 152, can be used on this Press for operating wiring dies for wiring coffee pots, measures, buckets, pans, etc. With regular standard bed, or with removable front placed in position, Press is used for operating cutting or combination dies for bodies, tops and bottoms for 3-lb. and 5-lb. lard pails, small varnish cans and similar work. This type of Press is of special value in factories where, on account of limited space, a number of presses cannot be advantageously operated. Total weight about 2,900 lbs.

Dimensions, page 146. Code Word as shown...........

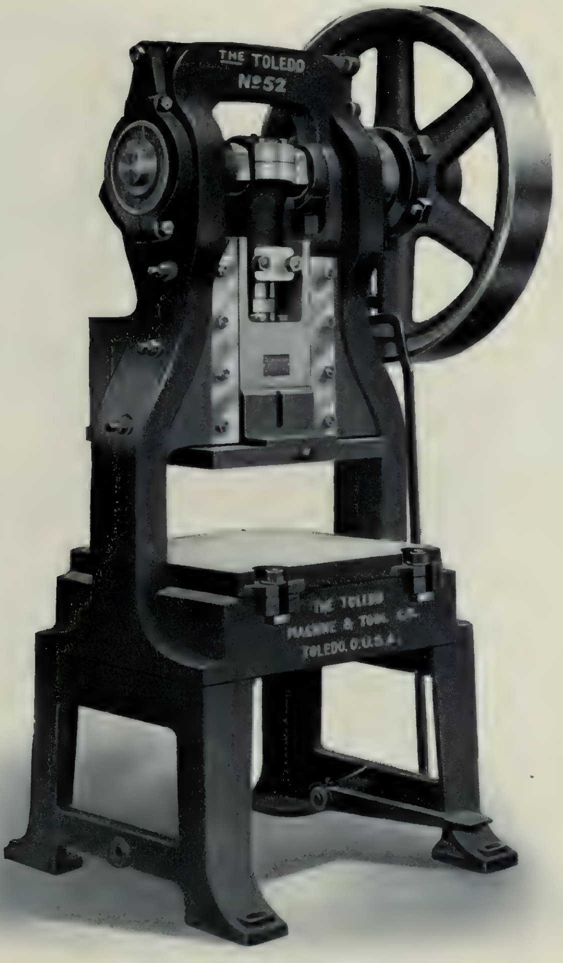
The "Toledo" No. 51 Arch Power Press



THIS new, heavy pattern Arch Press, as shown in illustration, with solid front to bed and knockout to slide, is adapted to work on the larger sizes of lard pails and petroleum cans and other pieced tinware, sheet iron stove work, shovels, cream separators and a wide range of similar work. Bed can be furnished either with or without removable front piece. With front piece removed, Press is adapted to operating bumping horns and fixtures, also special wiring dies and fixtures for other work reqiuring extra high die space. Total weight about 4,100 lbs.

Dimensions, page 146. Code Word............

The "TOLEDO" No. 52 Power Arch Press

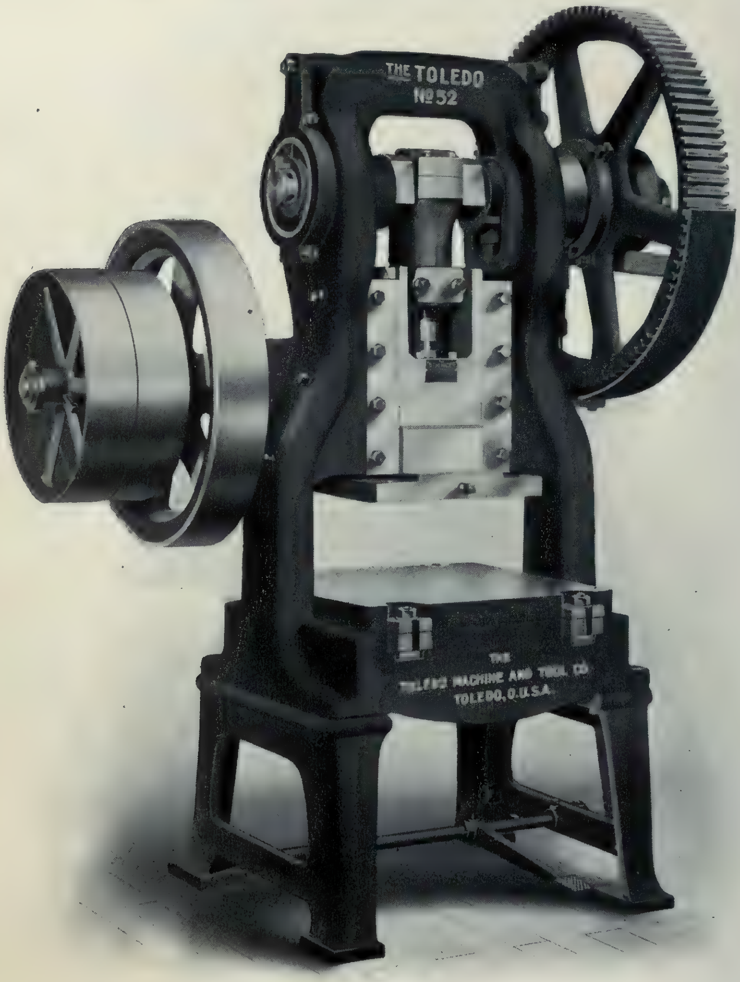


THIS Press is used in the manufacture of enameled and pieced tinware, steel ranges, vapor stoves and ovens, and for cutting out large blanks from light metal. Press is also used for cutting shapes for cloth and tick mittens, gloves, shoes, and a kindred line of work. When desired, Press is built with long stroke for deep forming and various classes of reducing work. Many of the dimensions may be modified to suit special requirements.

Slide has extra long bearings and is constructed in such a manner that great rigidity is obtained, making the Press adaptable for compound and blanking dies, combination cutting and forming dies, etc. Can be furnished with removable front piece to bed. Total weight about 6,200 lbs.

Dimensions, page 146. Code Word...........

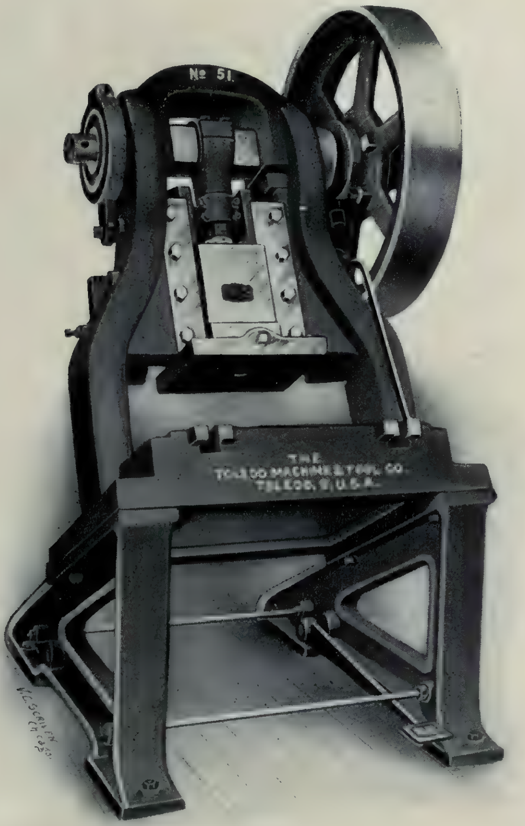
The "Toledo" No. 52 Arch Press, Geared



THIS illustration shows the application of gearing to this and the preceding sizes of Arch Presses, which adapts them for long stroke, deep forming, reducing and similar operations; also to operating large piercing, blanking and forming dies on heavy stock. Particularly suited and used for cutting blanks and for forming, finishing and wiring drip pans, electric heaters and similar work. Many of the dimensions can be changed to suit special requirements. Built geared or plain as desired, and with or without removable front. Total weight about 7,200 lbs.

Dimensions, page 146. Code Word...........

The "Toledo" No. 51 Arch Press—On Inclined Standards

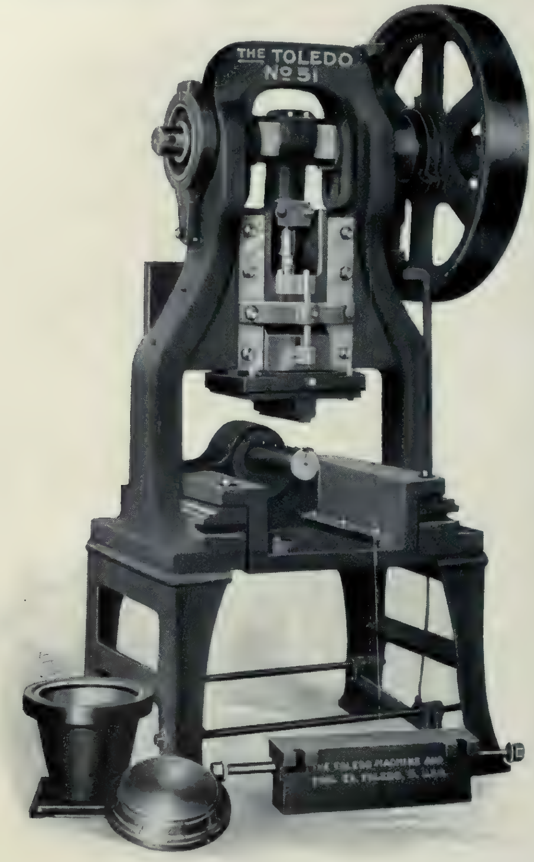


THIS style Press, as shown above, is used for a large variety of sheet metal work and pieced tinware, for cutting, stamping and embossing, in one operation, tops and bottoms of large cans and pails; also for cutting and stamping coal hod bottoms, fire shovels, metal shingles, etc.; for stamping lard pail and petroleum can bodies, and for operating nearly all combination drawing, cutting and stamping dies, wiring and horning tools.

Built with or without removable front and on upright or inclined standards. Total weight about 4,100 lbs.

Dimensions, page 146
Code Word, Inclined Standards............
Code Word, Upright Standards ....

The "Toledo" No. 51 Arch Press With Front Removed and Sunken Bolster and Horn



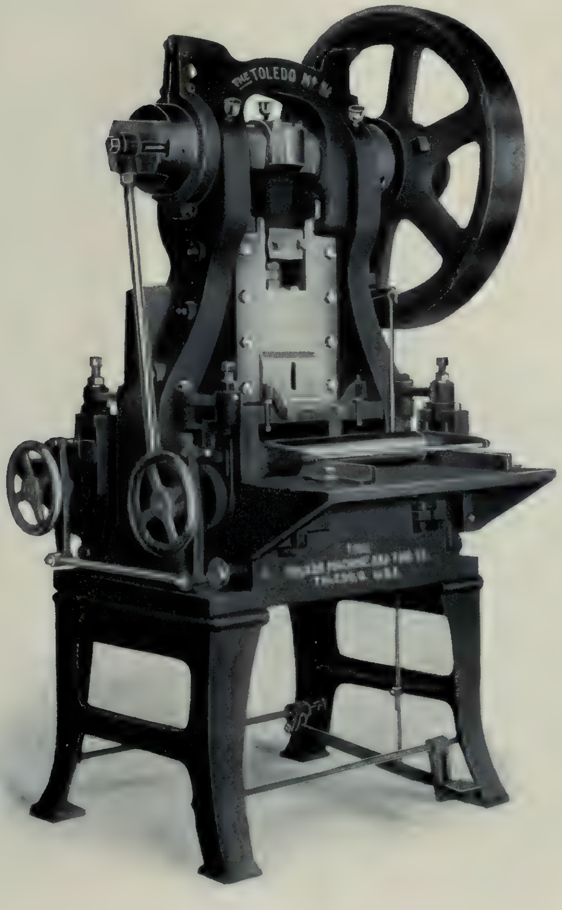
WHEN a wide range of work must be provided for with one Press, the type shown above is particularly desirable. In the manufacture of pieced tin and stamped ware, furnace pipe, metal boxes or packages, and similar work, this Press is most efficient and widely used.

The attachments shown, which are used for clinching or closing the wide seams on pails, tubs and other cylindrical articles, can be removed from the depressed or sunken bolster, and sliding plate inserted, thus fitting Press for operating wiring dies for flaring pails and similar work.

Attachments and depressed bolster can be easily and quickly removed and the removable front placed in position, practically converting machine into a solid front Press, adapted for operating blanking, gang perforating, forming and embossing dies, etc. Total weight about 4,200 lbs.

Dimensions, page 146
Code Word for Press....... ....
Code Word for wiring bolster...........

The "Toledo" No. 51 Arch Press, with Double Roll Feed

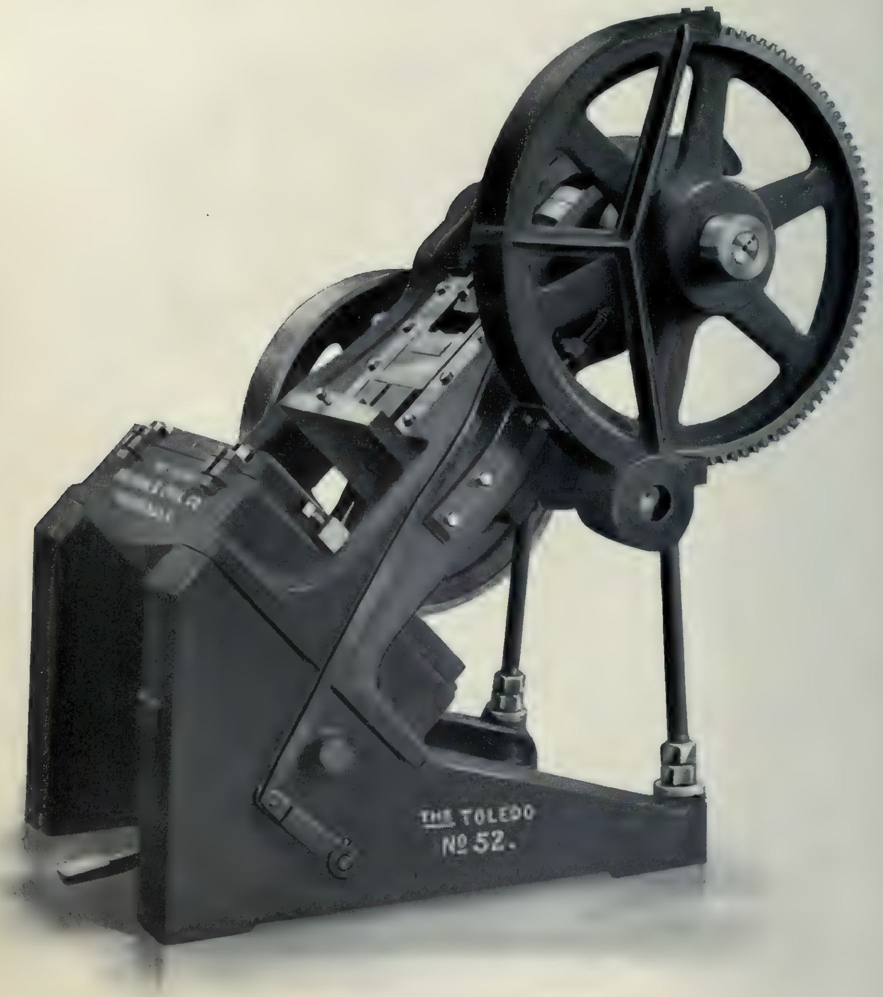


THIS illustrates one of our wide Roll Feeds used for perforating wide steel sheets for oil stove burners; for perforating sheet lead, copper, aluminum or fibre for various purposes. For convenience to the operator when setting or removing the dies, the front rolls are made to swing down or out of position without disturbing the tension or set gauges of the rolls.

This Press with attachments has capacity for perforating sheets as heavy as 12-gauge. Total weight about 4,100 lbs.

Description of roll feed, page 16. Dimensions, page 146. Code Word............

The "Toledo" No. 52 Power Arch Press, Geared



THE inclined position shown facilitates feeding and discharging the work, as the articles drop off the Press by gravity into trucks or receptacles provided for them; a distinct advantage for such work as metal shingles, can bodies and other formed and embossed work. Press will also operate combination cutting, drawing and forming dies and has the same capacity as our standard No. 52 Press. Total weight about 7,200 lbs.

Dimensions, page 146. Code Word............

The "Toledo" Straight Sided Single Crank Presses

Nos. 53 to 61 inclusive

THE "Toledo" Straight Sided Presses are of the latest design. The frames being built heavy and compact to overcome all unequal strains, are better adapted to heavy blanking, forming, drawing, reducing and embossing than Presses with overhanging frames. Any required distance from bed to slide and any length of stroke or slide motion can be furnished.

The gibs or slide bearings are extended down or left flush with slide, as desired, and are unusually long to insure a rigid support for the slide during its entire travel.

Modifications in bed area and opening in bed can be made to suit special work.

The connection screw on these Presses is unusually heavy, and the crank shaft and screw are forged from open hearth high carbon steel.

The pitman adjustment cap is held by large studs, and clamps squarely against the thread. This feature is one of unusual importance and is specially suited for Presses on heavy work. There is no opportunity for the adjustment to work loose, *perfect bearing* being obtained at all times on the *thread* of screw.

This is the only form of connection made that gives a perfect bearing on the thread.

The "Toledo" Patented Three-Engagement Sliding Block Clutch, with gravity releasing device or friction clutch, is fitted to the larger Presses, and the rocker arm or pin clutch to the smaller Presses. These clutches are fully illustrated on pages 11, 12 and 13.

These Presses are specially designed for hot or cold trimming on drop forgings, edge and miners' tools; also for operating combination cutting and drawing dies, reducing dies; for punching, piercing, shaping or stamping heavy blanks in the manufacture of automobile, hardware, steel car, sewing machine, typewriter, bicycle parts; cash registers, electrical instruments, cutlery, skates, and similar work, as well as for stamping and embossing brass and aluminum baggage checks, coins, medals, builders' hardware, etc.

The special features of Trimming Presses in this style are described on page 185.

The "Toledo" Straight Sided Blanking, Forming and Embossing Presses

Number of Press	53	54	55	55½	56	56	57	57-S
Page of Catalogue	158	159	160	161	162	Special	164	166
PLAIN PRESS								
Price, including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	2800	3800	4950	6900	8700	12800	13800	14300
*Area of bed, F. to B., R. to L. ... inches	13x12	16x15	19x18	20x20	22x22	28x26	24x24	32x32
*Opening in bed, F. to B., R. to L. ... inches	6x6	8x8	10x10	11x11	13x13	19x18	14x14	25D
*Distance between housings ... inches	12	15	18	20	22	26	24	32
*Standard stroke of slide ... inches	2	2	2½	2½	3	5	3	3
Maximum stroke of slide ... inches	5	5	6	6	8	10	10	10
Adjustment of slide ... inches	2	2	2½	2½	2½	2½	3	3
*Distance bed to slide, stroke and adj. up ... inches	10	11	12	12	13	25	14	14
Thickness of bolster plate ... inches	2	2	2¼	2½	2½	2½	2½	2½
Diameter and face of flywheel ... inches	34x5½	36x5½	42x6½	42x6½	50x7	50x7	60x7½	60x7½
Weight of flywheel ... pounds	650	775	1050	1050	1350	1350	2150	2150
Speed of flywheel ... R. P. M.	100	90	90	90	80	80	70	70
Distance floor to center of shaft ... inches	62	69	70	76	79	96	84	84
Floor space over all, F. to B., R. to L. ... inches	38x39	40x44	44x50	51x57	52x62	52x65	60x72	60x72
Floor space of legs, F. to B., R. to L. ... inches	38x34	40x34	42x40	51x42	51x45	51x45	54x52	54x52
GEARED PRESS								
Price, including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	3850	4350	5850	8000	10000	14200	15900	16400
Proportion of gearing, about	6:1	6½:1	6½:1	7½:1	7:1	7:1	7½:1	7½:1
Diameter of gear ... inches	32	35	42	49	54	54	62	62
Size of balance wheel ... inches	30x5	32x5½	34x5½	38x6	42x6½	42x6½	50x7	50x7
Weight of balance wheel ... pounds	400	500	600	800	1000	1000	1250	1250
Size of belt wheel ... inches	18x4	20x5	24x5	24x5	24x6	24x6	28x6	28x6
Speed of belt wheel ... R. P. M.	300	300	290	260	260	260	225	225
Strokes of slide, per minute	50	45	45	35	35	35	30	30
Floor space over all, F. to B., R. to L.	42x52	44x62	51x72	56x75	62x84	65x90	72x95	72x98

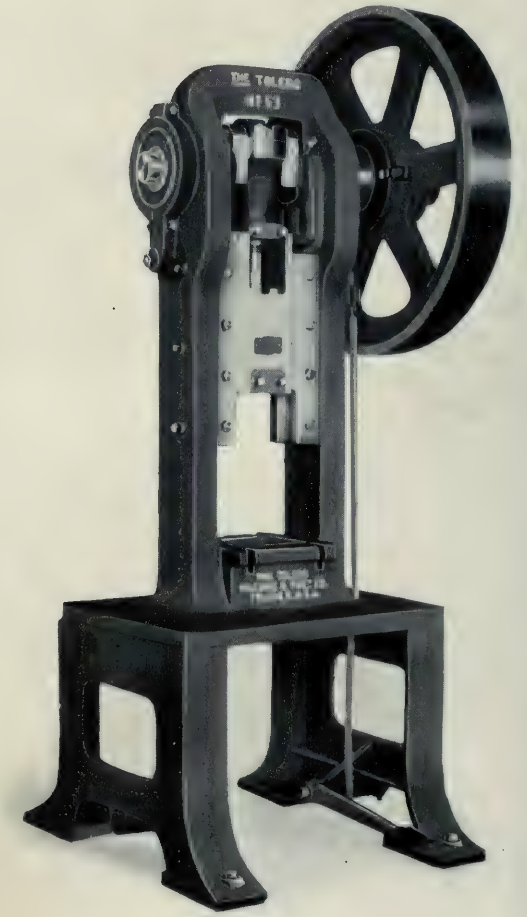
*These can be changed.

The "Toledo" Straight Sided Blanking, Forming and Embossing Presses

Number of Press	58	58-S	59	59 Special	59-S	59¼	59½	59¾	60	61
Page of Catalogue	167	168	169	171	172	173	174	175	176	
DOUBLE GEARED PRESS										
Price including bolster plate	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Price of extra bolster plate	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Weight, about ... pounds	25600	26200	40000	44000	45000	60000	86000	98000	160000	265000
*Area of bed, F. to B., R. to L. ... inches	27x27	30x30	32x30	39x39	36x36	40x40	50x40	50x48	54x54	60x60
*Opening in bed, F. to B., R. to L. ... inches	16x16	16x16	18x18	18D	22x22	20D	28D	30D	32D	35D
*Distance between housings ... inches	27	30	30	40	36	40	40	48	54	60
*Standard stroke of slide ... inches	3	3	4	8	18	10	12	14	16	18
Maximum stroke of slide ... inches	12	12	18	18	26	22	22	22	30	36
Adjustment of slide ... inches	3	3	4	4	4	4	4	4	6	6
*Distance bed to slide, stroke and adj. up ... inches	15	16	16	22	54	36	40	41	48	54
Thickness of bolster plate ... inches	3	3	4	4	4	5	5	6	7	7
Diameter of main gear ... inches	62	62	74	74	74	84	91	91	110	124
Proportion of gearing, about	22:1	22:1	26:1	26:1	26:1	40:1	40:1	42:1	50:1	55:1
Size of balance wheel ... inches	50x7	50x7	60x7	60x7	60x7	60x7	61x8	61x8	78x8	80x10
Weight of balance wheel ... pounds	1250	1250	1400	1400	1400	1400	2400	2400	4200	5000
Size of belt wheel ... inches	28x6	28x6	40x8	40x8	40x8	44x8	44x9	44x10	50x12	60x14
Speed of belt wheel ... R. P. M.	375	375	375	375	375	325	300	300	300	275
Strokes of slide per minute	17	17	15	15	15	8	7½	7	6	5
Distance floor to center of shaft ... inches	96	97	104	112	140	127	141	141	176	186
Floor space over all, F. to B., R. to L. ... inches	80x100	80x100	90x112	90x112	92x156	96x182	115x185	115x192	142x230	145x262
Floor space of base, F. to B., R. to L. ... inches	58x56	58x56	76x58	76x58	75x62	84x150	90x154	90x160	130x190	138x200

*These can be changed.

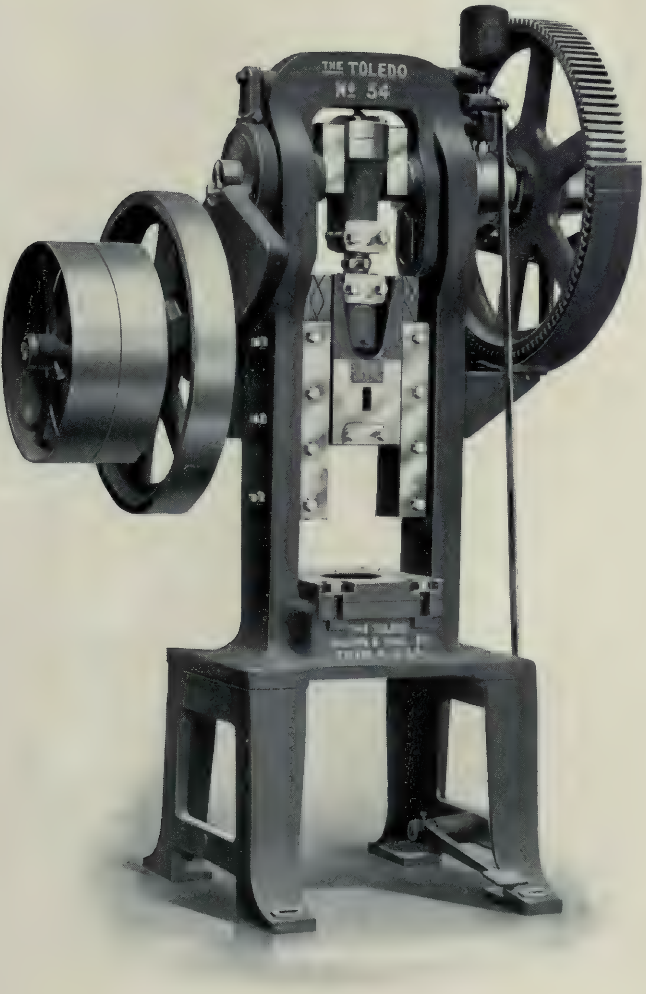
The "Toledo" No. 53 Straight Sided Press With 12-inch Stroke



THIS machine, like our other Straight Sided Presses, is made plain or geared with either long or short stroke to suit a variety of work, being particularly suited for blanking and trimming small, deep stamped shells and for light deep forming and reducing. Total weight about 2,800 lbs.

General description, page 155. Dimensions, page 156. Code Word............

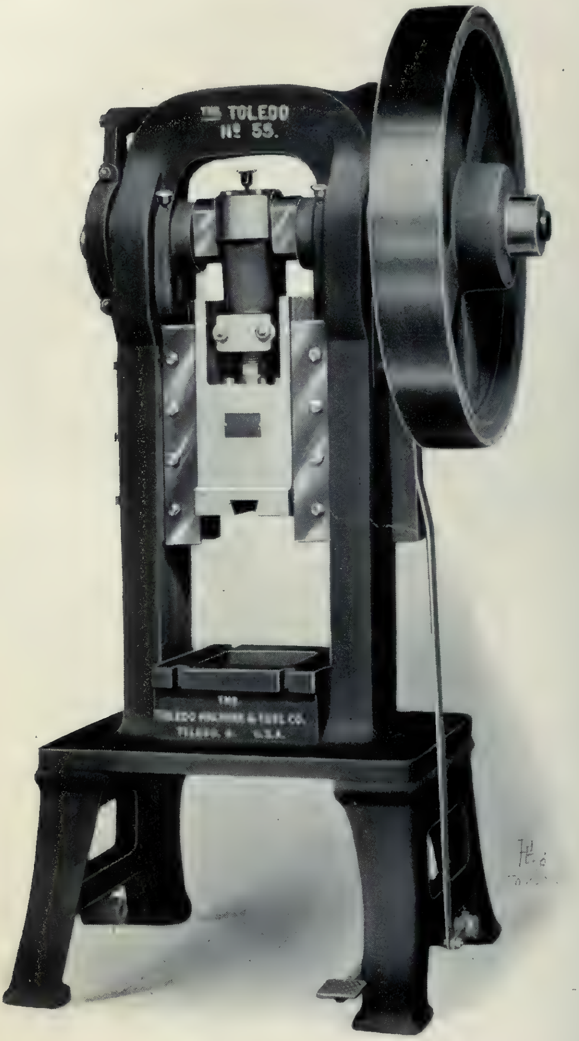
The "Toledo" No. 54 Straight Sided Press, Geared



THIS style Press is furnished in several sizes with long or short stroke, for a wide range of blanking, trimming, forming and reducing operations on grease-cups, cut-out boxes, and other work of the lighter gauges of metal. Total weight about 4,350 lbs.

General description, page 155. Dimensions, page 156. Code Word............

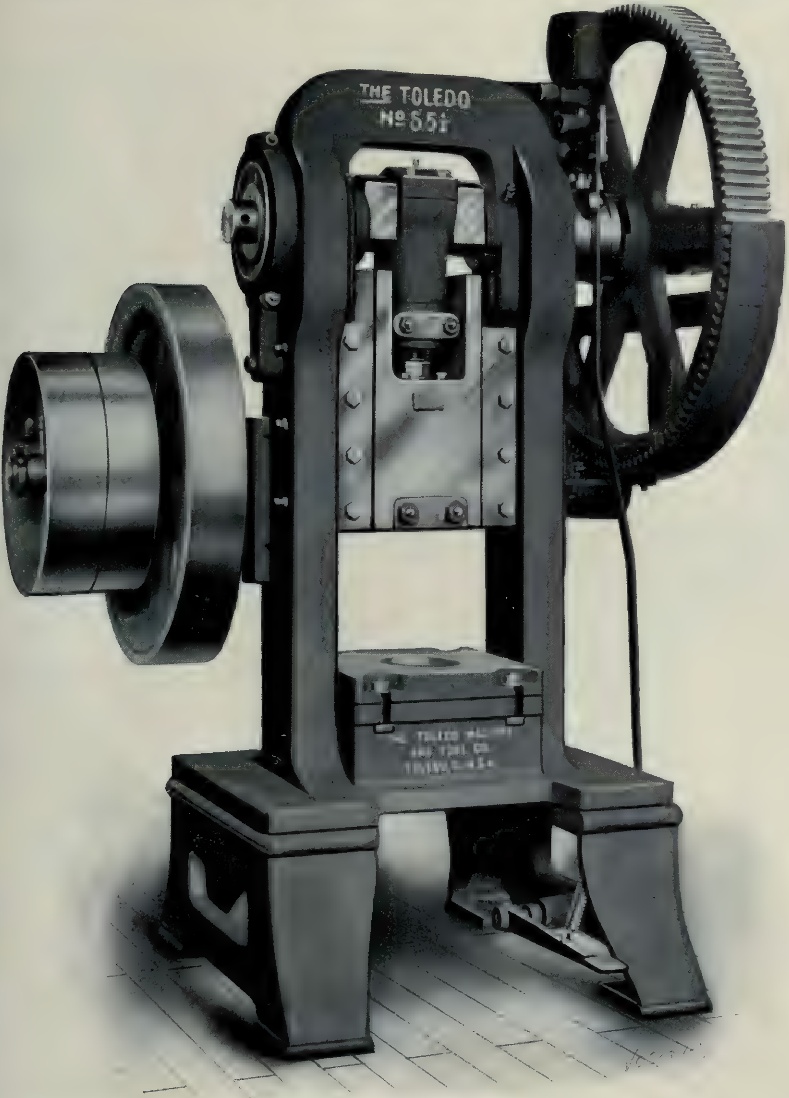
The "Toledo" No. 55 Straight Sided Press



THIS Press is particularly adapted and used for blanking, perforating, shearing or forming, and also used for operating combination dies for drawing and cupping parts used in the manufacture of automobiles, motor cycles, bicycles, builders' hardware, and similar work. Total weight about 4,950 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 55½ Straight Sided Press, Geared

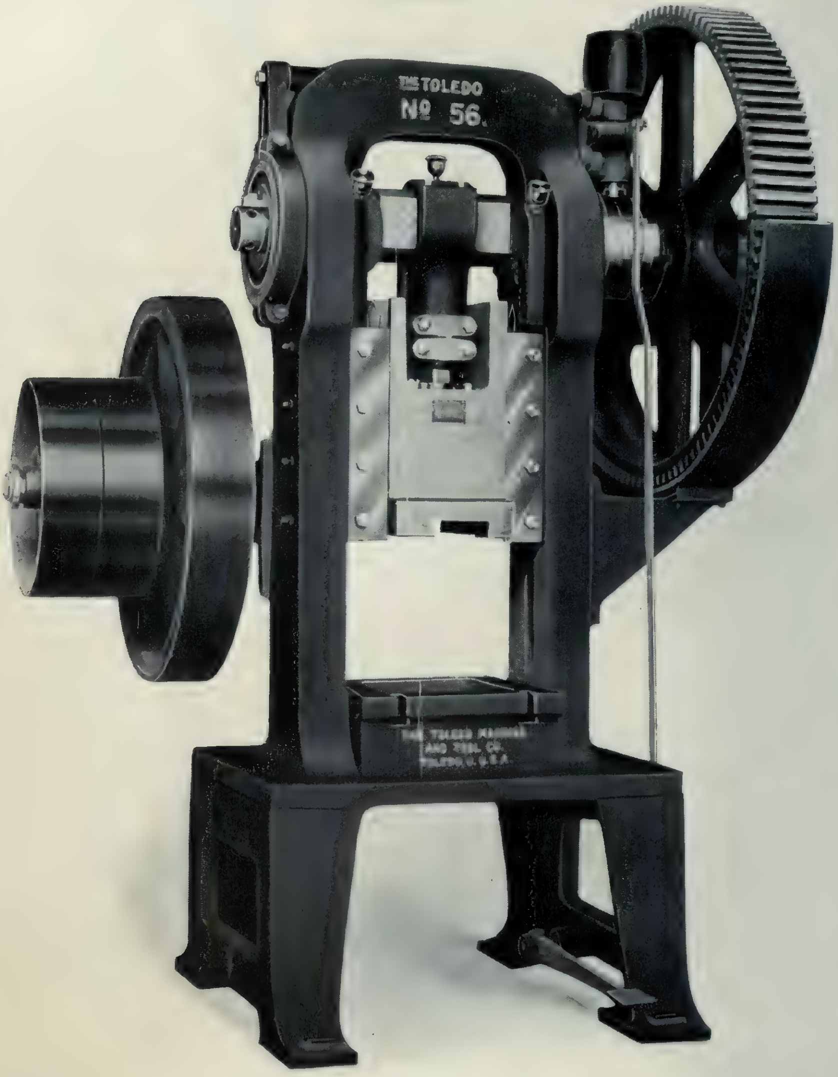


WHEN geared, this style of Press is specially suited for heavy cold punching or trimming, and is used extensively by manufacturers of auto parts, bicycles and carriage hardware, for shaping and stamping sheet metal connections, for heavy punching and piercing of blanks, etc. The smaller sizes we build are used for producing parts for skates, electrical novelties, tools, watch, clock and gun parts, and for a similar line of work. Total weight about 8,000 lbs.

General description, page 155. Dimensions, page 156
Code Word for Press, widened pattern....................
Code Word for Press as shown, straight sides.............

The "Toledo" No. 56 Straight Sided Press, Geared

(Patented)

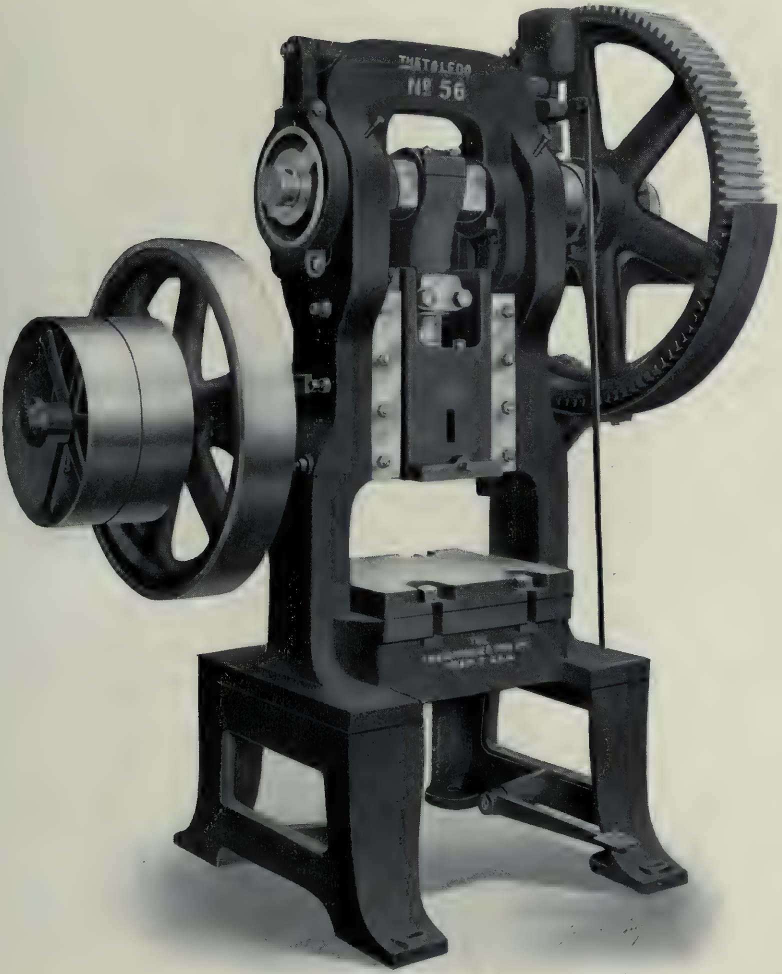


THE above Press is well adapted and used extensively for blanking, forming, reducing and embossing hub caps, ball races, dust caps, differential covers, electric sad iron and toaster parts, and a wide range of similar work.

All our presses of this type can be fitted with various forms of knockouts and special feeding attachments to suit requirements of customer. Total weight about 10,000 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 56 Blanking and Forming Press, Geared Widened Pattern



THE illustration herewith shows one of our regular No. 56 Straight Sided Presses, widened out, so as to give enlarged bed area and increased width between uprights.

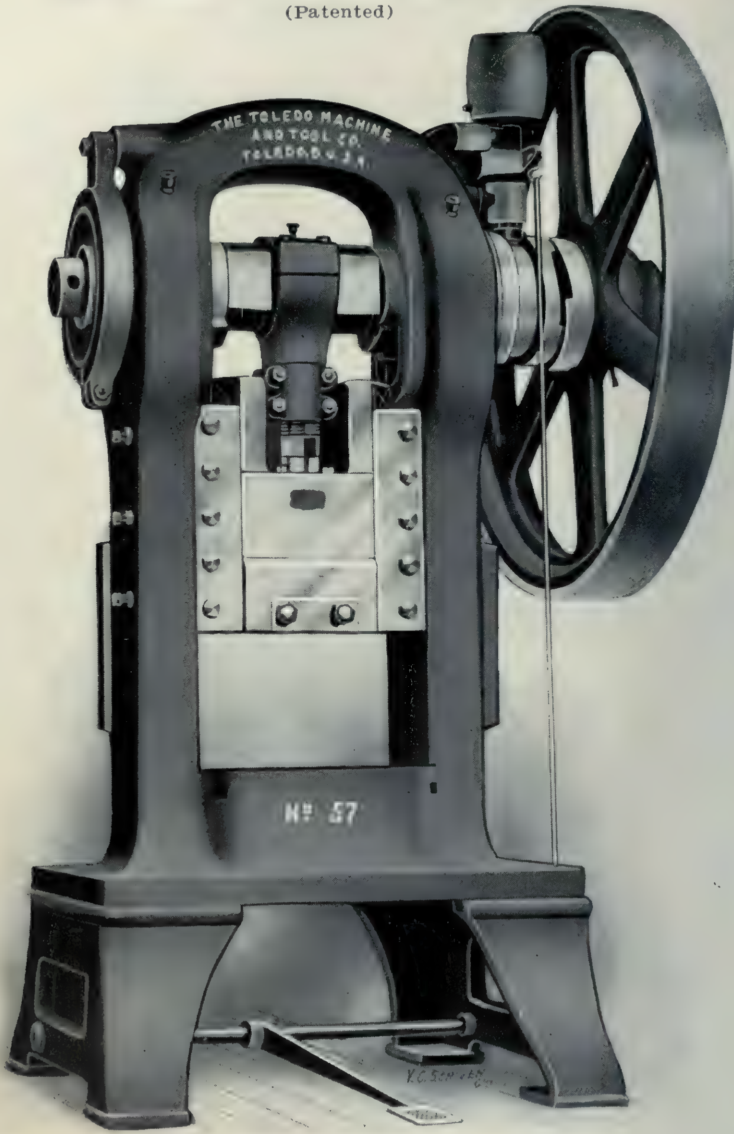
The widened patterns of these straight sided Presses are unusually heavy and absolutely as rigid as the standard straight sided type. This feature can be obtained at a slight addition to the standard price.

This Press is particularly adapted for blanking and forming steel barrel heads, steel toys, and butt-joint tubing of about 18-gauge. Total weight about 10,000 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 57 Straight Sided Press

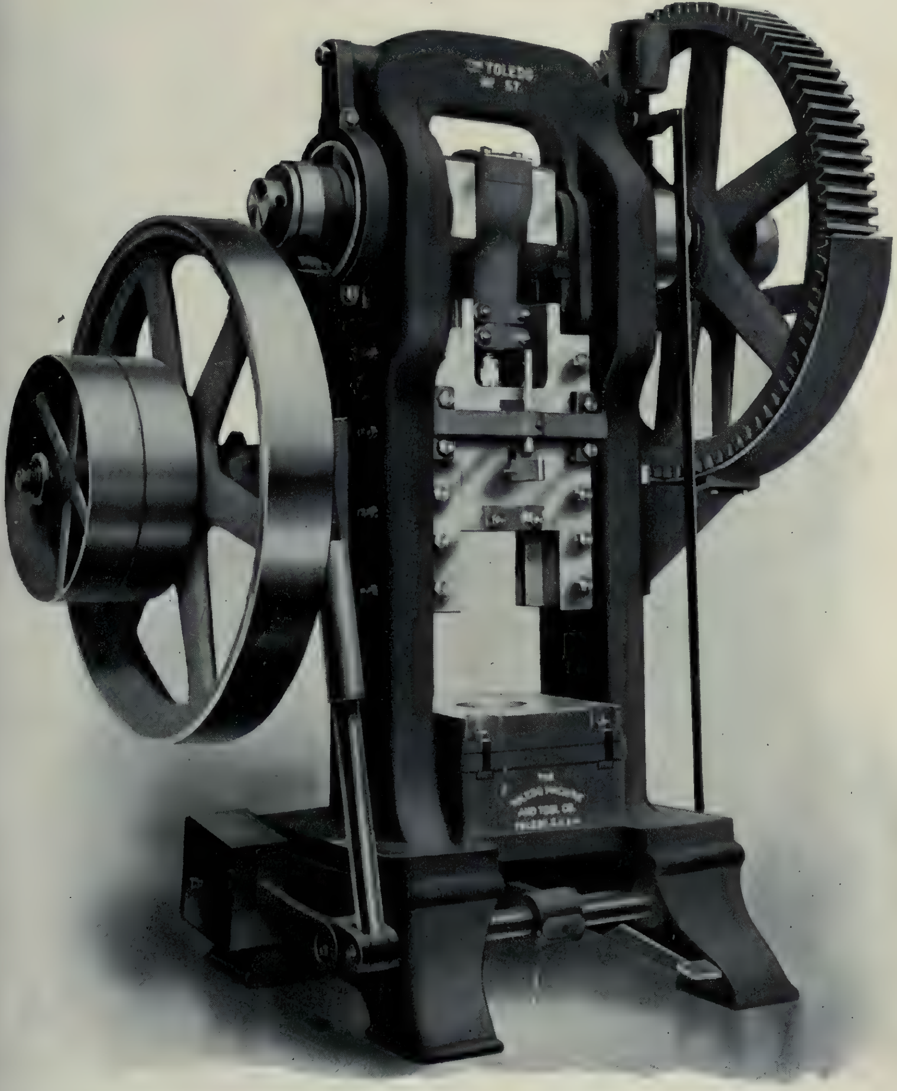
(Patented)



NUMBER 57 Press, as shown above, is very powerfully and compactly built; therefore, specially suited for trimming drop forgings, for heavy forming and embossing on locks, sewing machine and cash register parts, aluminum coins, baggage checks, etc. Also suited for punching, shearing and trimming electrical and windmill parts, automobile and wagon trimmings, and a similar class of work. Stroke or slide motion can be furnished varying from 2 to 12 inches. Total weight about 14,000 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 57 Straight Sided Press With Lower Knockout

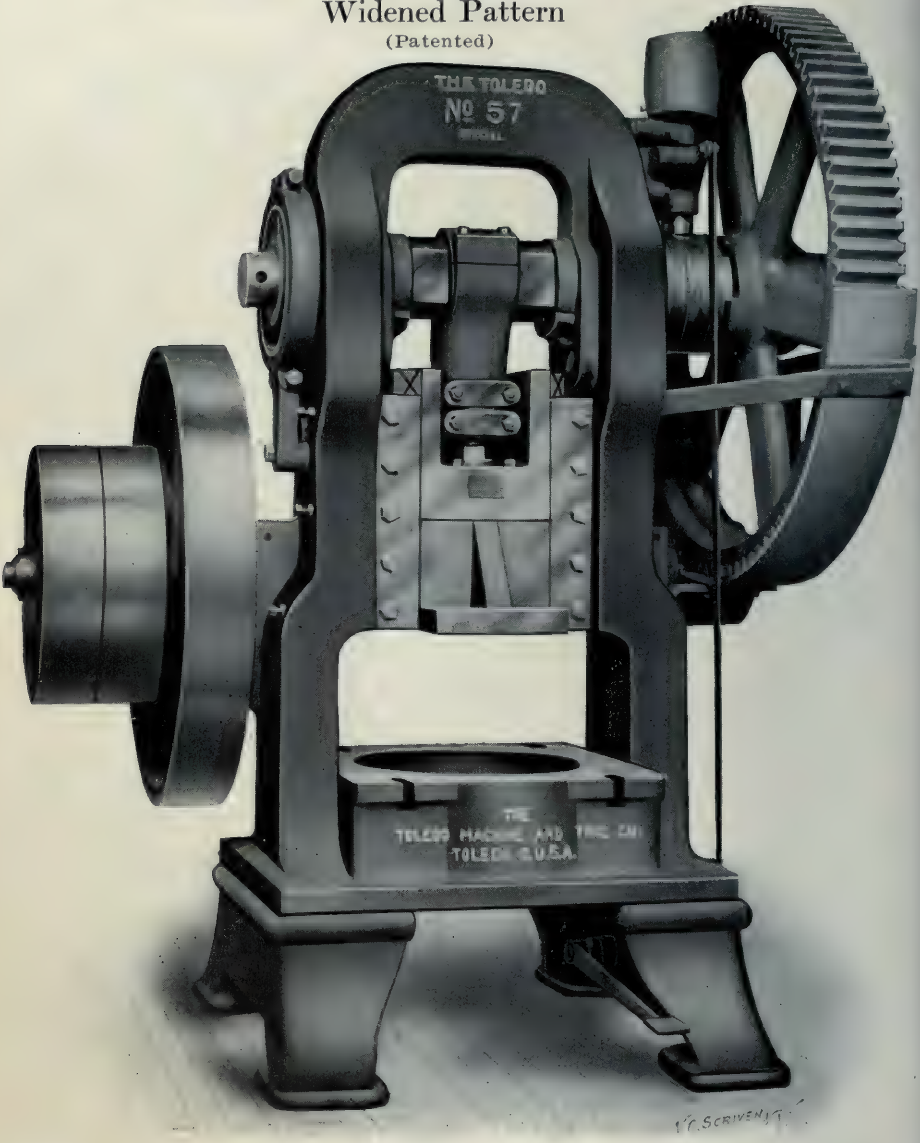


THIS illustration shows our No. 57 Geared Press with cam-actuated automatic lower knockout in bed. This cam movement is made adjustable, enabling the operator to have the lower knockout arm follow closely the upper movement of slide; the quick return cam movement gives the operator greater length of time to remove the finished work, and place new pieces in position, making it possible to keep the slide in continuous operation, thus materially increasing the output. Total weight about 15,900 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 57 Straight Sided Press, Geared Widened Pattern

(Patented)



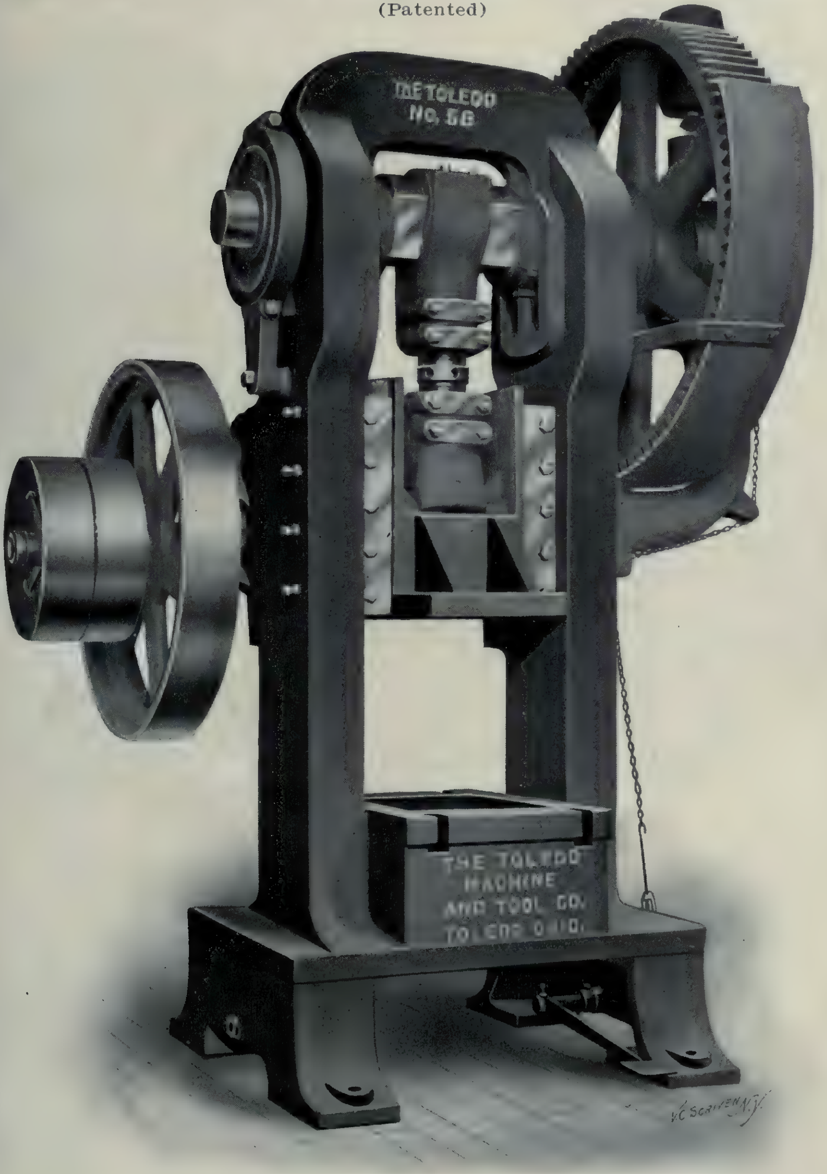
THIS illustration shows a Widened Pattern Press of the No. 57 size, adapted to operating cutting dies for large blanks, and also for forming tank heads or ends, and a wide range of other smaller work for which it would not be desirable or convenient to install a double-crank Press.

Press shown has bed area of 32 inches by 32 inches, and opening in bed 25 inches in diameter. Built with stroke or slide motion varying from 2½ inches upward, and with plain flanged or capped slide, with recess to suit. Total weight about 16,500 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 58 Straight Sided Press, Double Geared

(Patented)



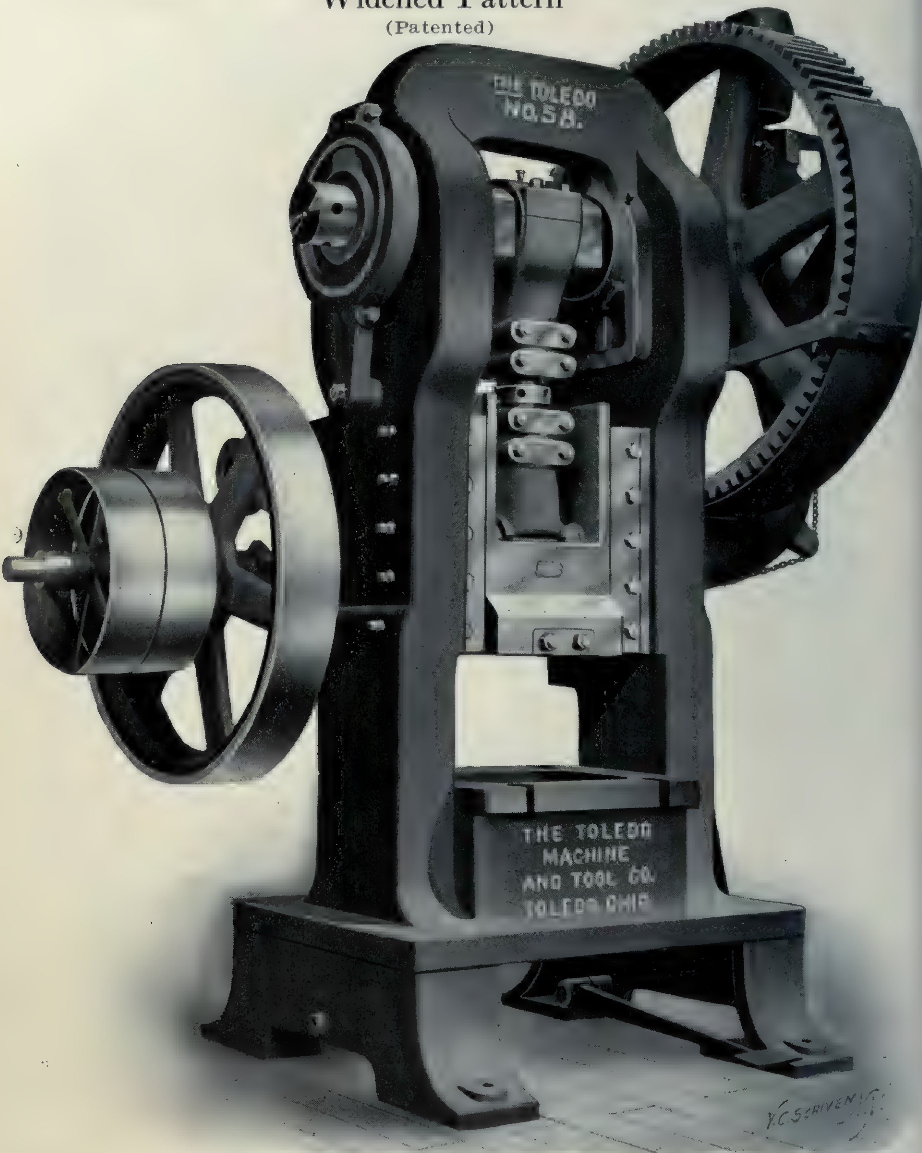
An unusual distance from bed to slide is provided for, as shown in this illustration of No. 58 Press, to accommodate dies for a special class of deep forming, such as automobile gear cases, small brake drums, pulley hubs, pulley and pipe flanges and similar work.

Press can also be used for hot forging on railroad and miners' tools and like work. Total weight about 25,600 lbs.

General description, page 155. Dimensions, page 156. Code Word............

The Toledo" No. 58 Straight Sided Press, Double Geared Widened Pattern

(Patented)

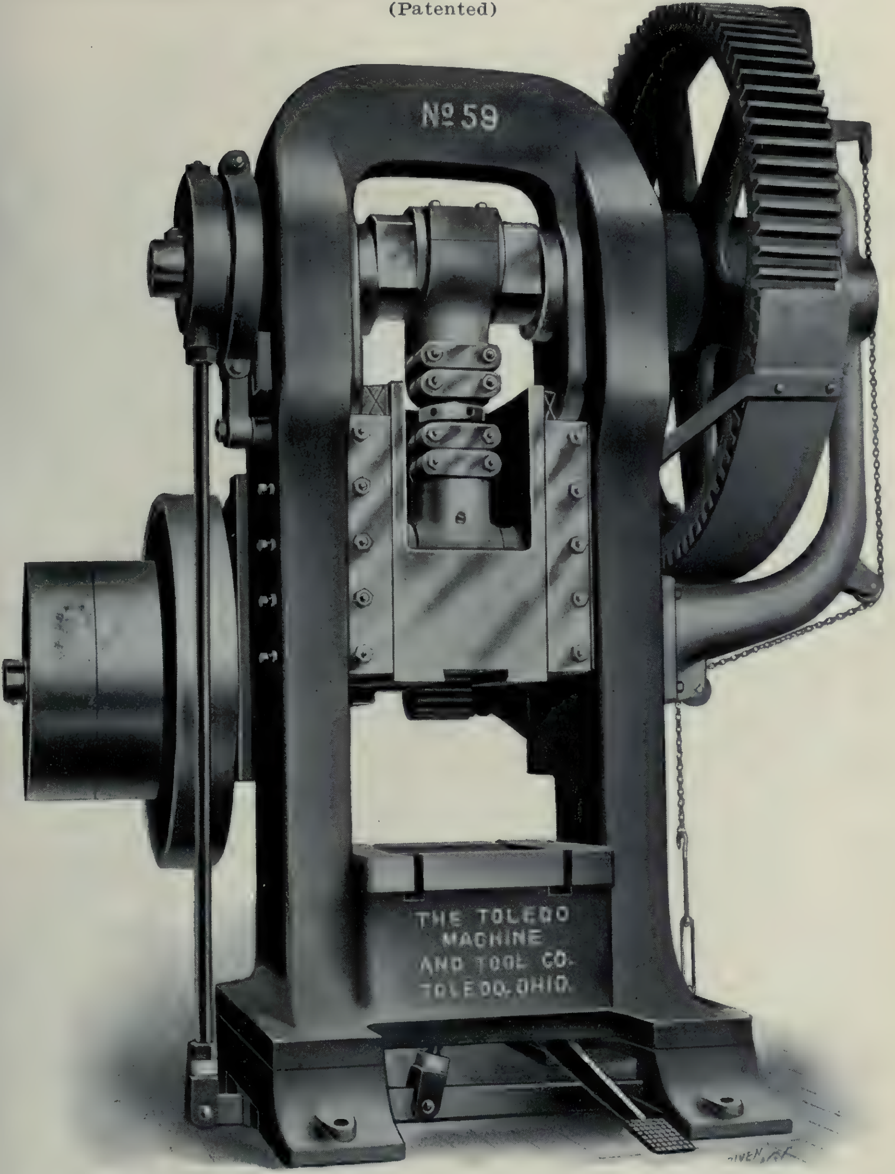


THIS Press is adapted to punching steel plates ¼-inch thick and thicker for electrical, dynamo and motor construction and similar work; the long and deep slide bearings and the rigid, heavy construction of pitmans, together with the three-engagement automatic sliding block clutch, fit this Press to give the very best results and the greatest support to dies for work of this character. Total weight about 26,200 lbs.

General description, page 155. Dimensions, page 157. Code Word...........

The "Toledo" No. 59 Straight Sided Press, Double Geared

(Patented)


No 59
THE TOLEDO MACHINE AND TOOL CO. TOLEDO, OHIO

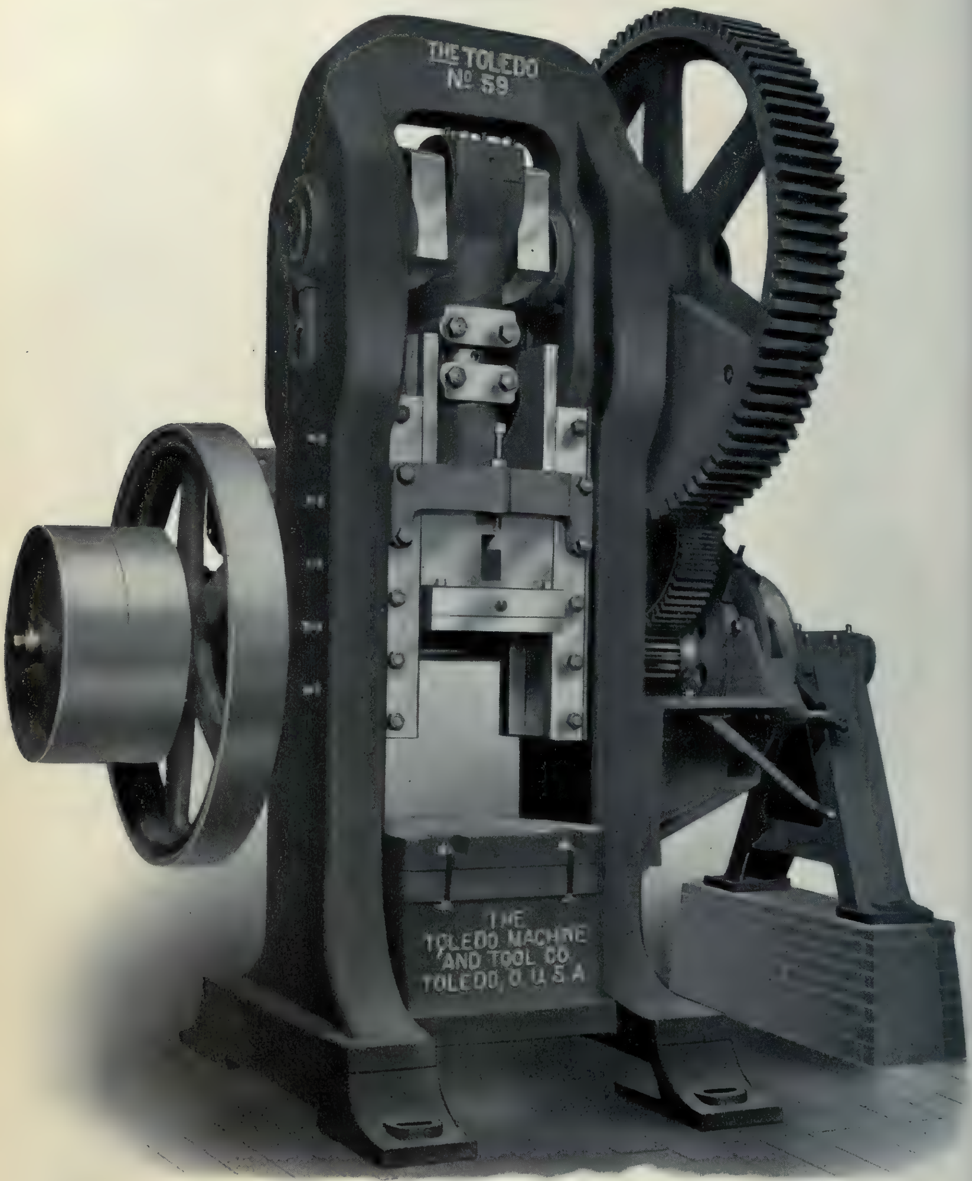
ABOVE illustration shows our No. 59 Double Back Geared Straight Sided Press, fitted with cam-actuated lower knockout in bed. Press is particularly suited to heavy forming for stamped steel heads or ends for range boilers, brake drums, hub flanges and other auto parts, and for cutting and forming pipe coupling rings or joints, as well as for a general line of deep drawing, reducing and forming. Total weight about 40,000 lbs.

General description, page 155. Dimensions, page 157

Code Word, exclusive of knockout...........

The "Toledo" No. 59 Straight Sided Press, Double Geared

(Patented)

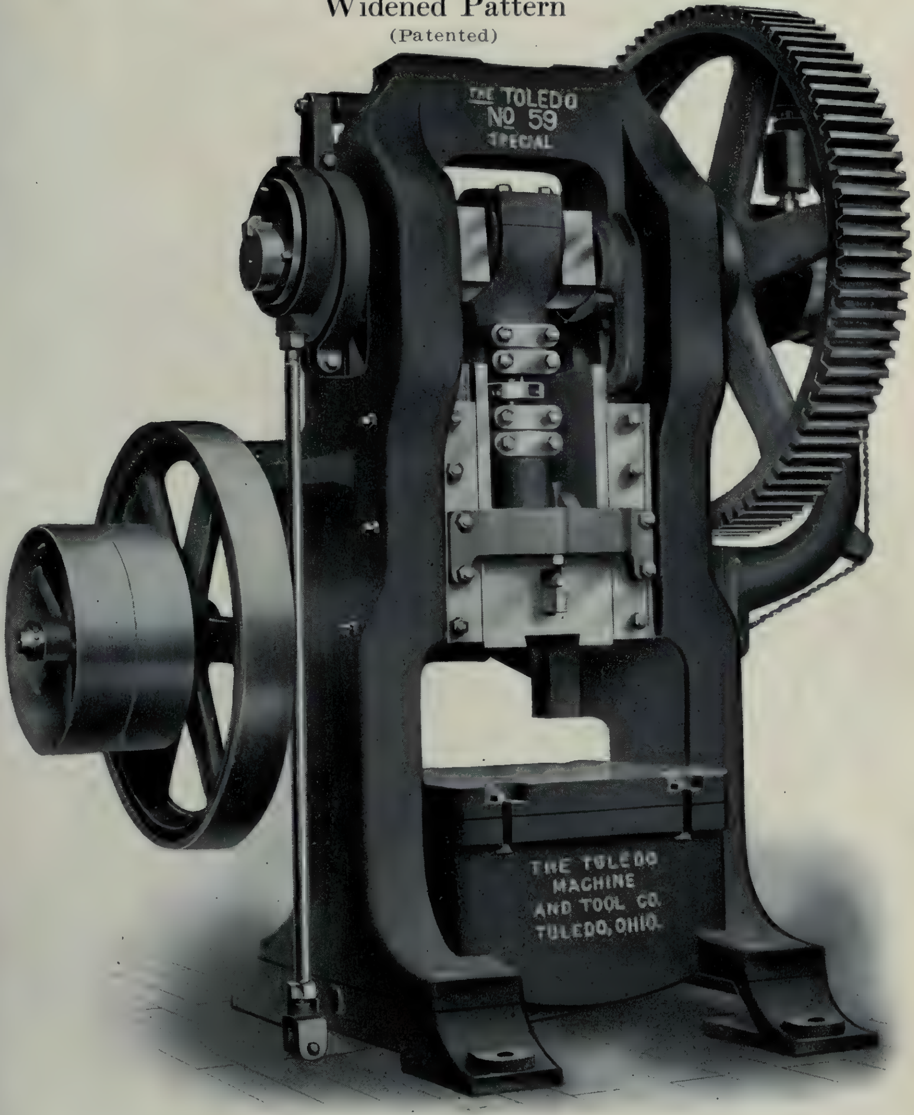


THE Press illustrated with our new Patented Friction Clutch, with hand lever control, has an unusually long stroke or slide motion, and is intended for drawing and reducing deep stampings in heavy steel plate, such as car journal lids, logging tool handles, blower fan blades, wagon hubs, etc. Total weight about 40,000 lbs.

General description, page 155. Dimensions, page 157. Code Word...........

The "Toledo" No. 59 Straight Sided Press, Double Geared Widened Pattern

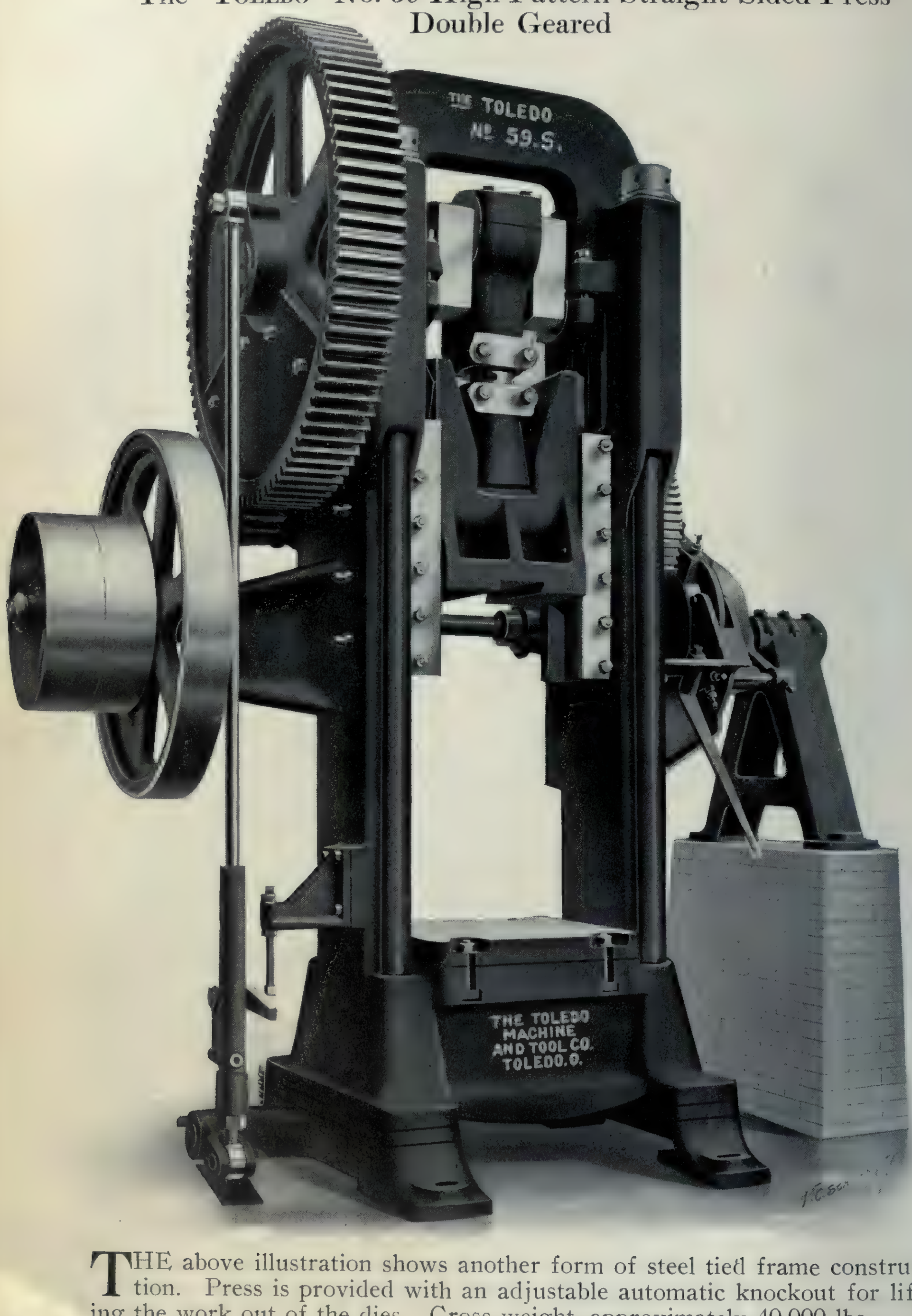
(Patented)



WE illustrate here our No. 59 Single Crank Press widened to 40 inches. An unusually large bed area is thereby obtained in a single crank Press with a suitable capacity for work such as would otherwise require a double crank Press, necessitating a high-priced machine without obtaining a greater capacity. This Press is adapted to producing stamped steel heads of heavy gauges for boilers and furnaces, and for blanking, cutting and forming a wide range of other work. Total weight about 45,000 lbs.

General description, page 155. Dimensions, page 157. Code Word...........

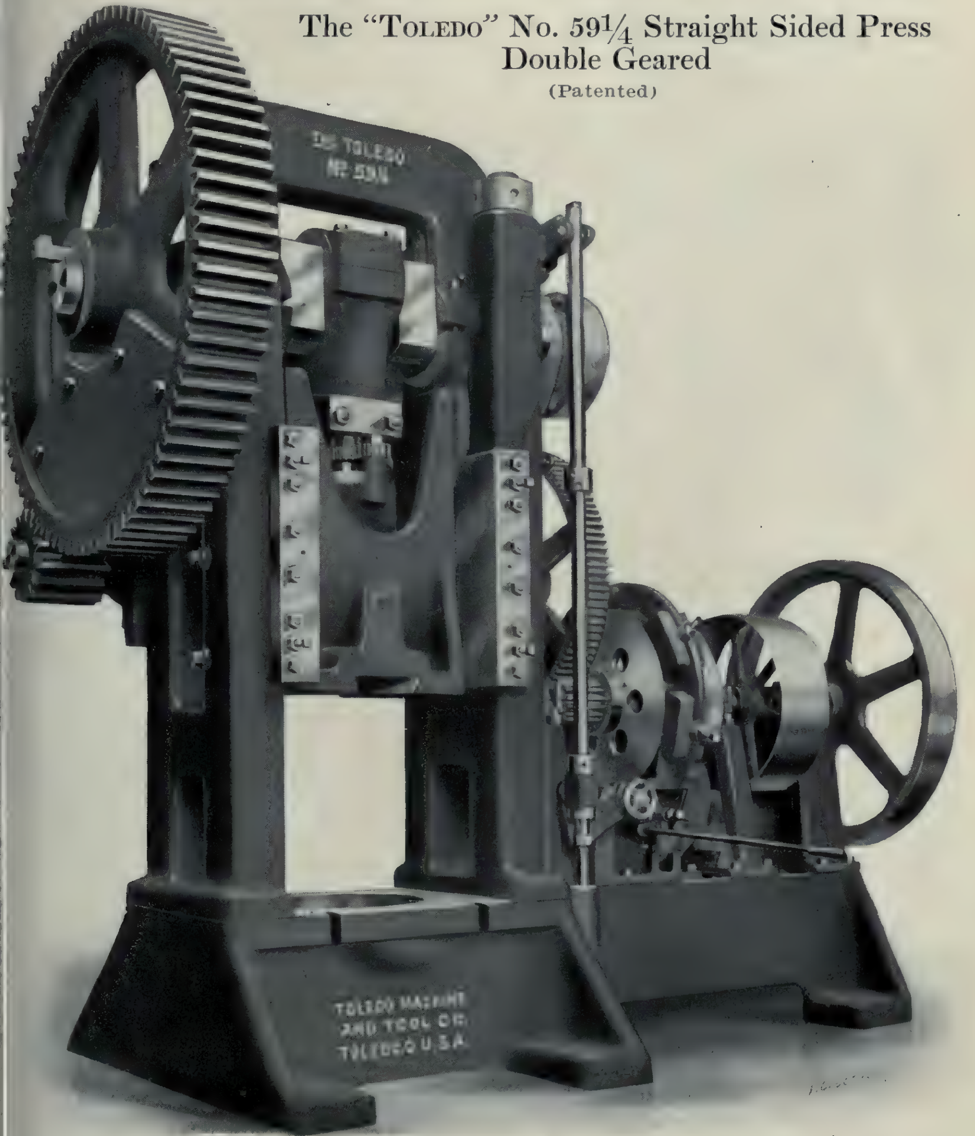
The "Toledo" No. 59 High Pattern Straight Sided Press Double Geared



THE above illustration shows another form of steel tied frame construction. Press is provided with an adjustable automatic knockout for lifting the work out of the dies. Gross weight, approximately 40,000 lbs.
General description, page 155. Dimensions, page 157. Code Word............

The "Toledo" No. 59¼ Straight Sided Press Double Geared

(Patented)



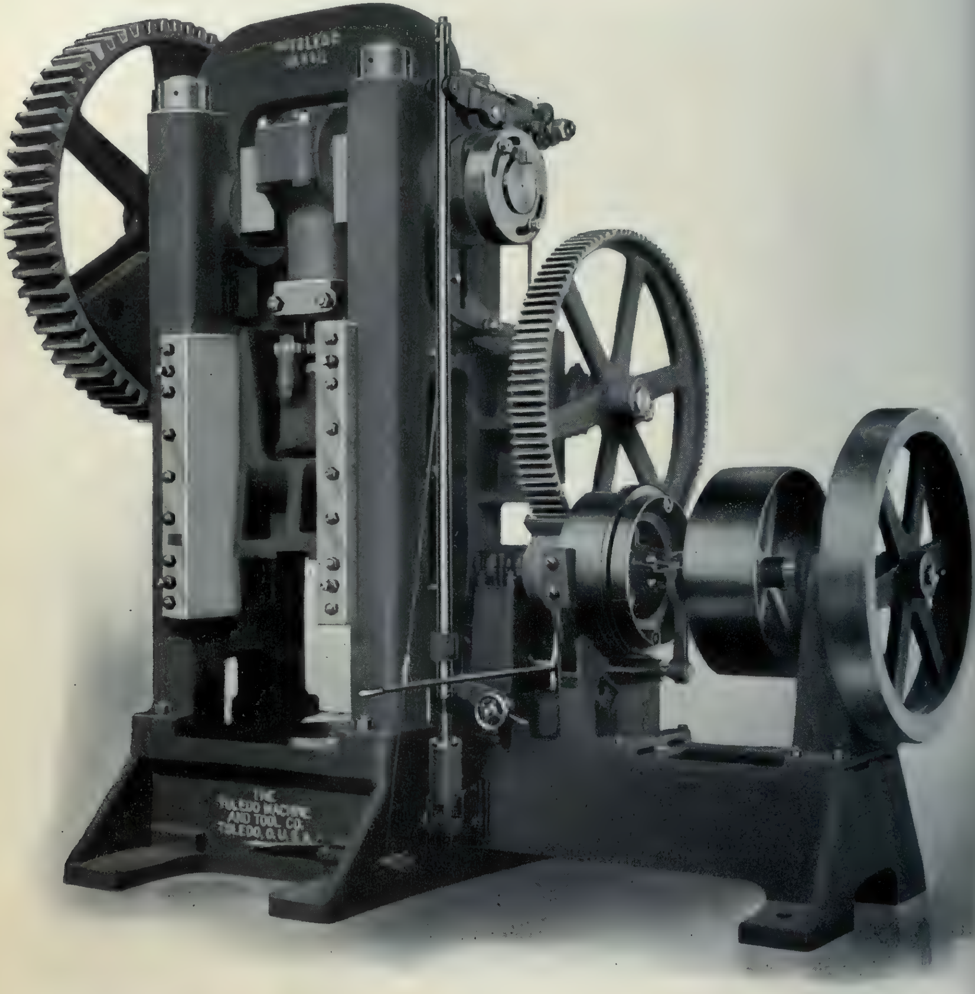
THE No. 59¼ Press, illustrated above, is designed and used for blanking, cupping and reducing operations on axle housings, brake drums and other heavy pressed steel automobile parts, cream separator shells, steel trays, pans and similar work of the heavier gauges of metal.

The frame of this Press is of the built-up type, reinforced with massive steel tie-rods which are heated and shrunk into place. Press is fitted with our well known powerful friction clutch, with ring-oiling bearings and mounted on a heavy sub-base, securely bolted and dowelled to the main frame. Gross weight, approximately 60,000 lbs.

General description, page 155. Dimensions, page 157. Code Word............

The "Toledo" No. 59½ Straight Sided Press, Double Geared

(Patented)



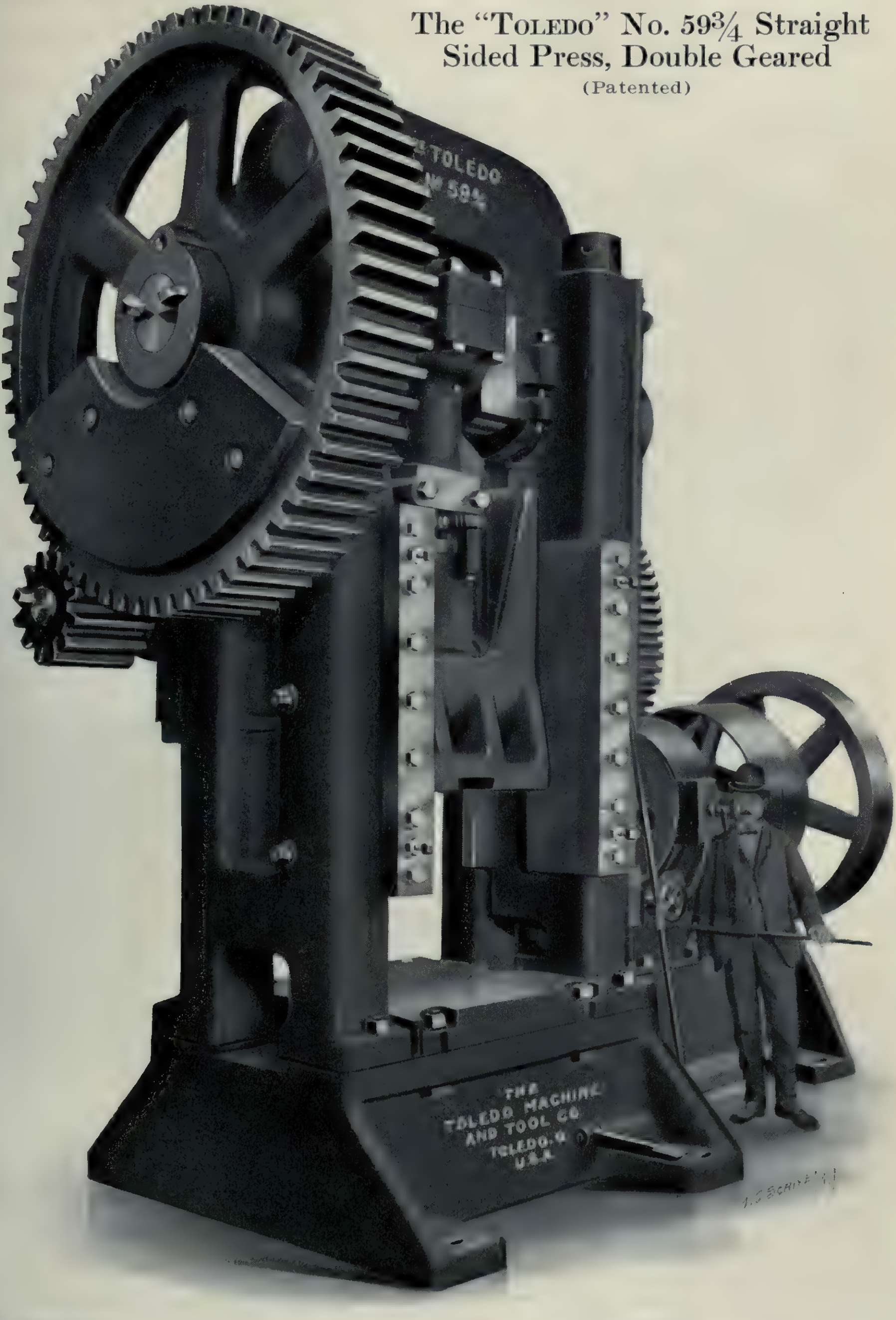
THIS size Press, having a built-up frame reinforced with heavy steel tie-rods, and fitted with powerful gearing, massive connection and high-carbon steel shaft, is used on work of the severest character in drawing, reducing and swaging steel stampings, such as are used for brake drums and other heavy steel automobile parts, and a wide range of other stampings either in hot or cold pressed work.

The illustration shows our patented friction clutch with automatic releasing device, in addition to the hand lever control. Total weight about 86,000 lbs.

General description, page 155. Dimensions, page 157. Code Word...........

The "Toledo" No. 59¾ Straight Sided Press, Double Geared

(Patented)

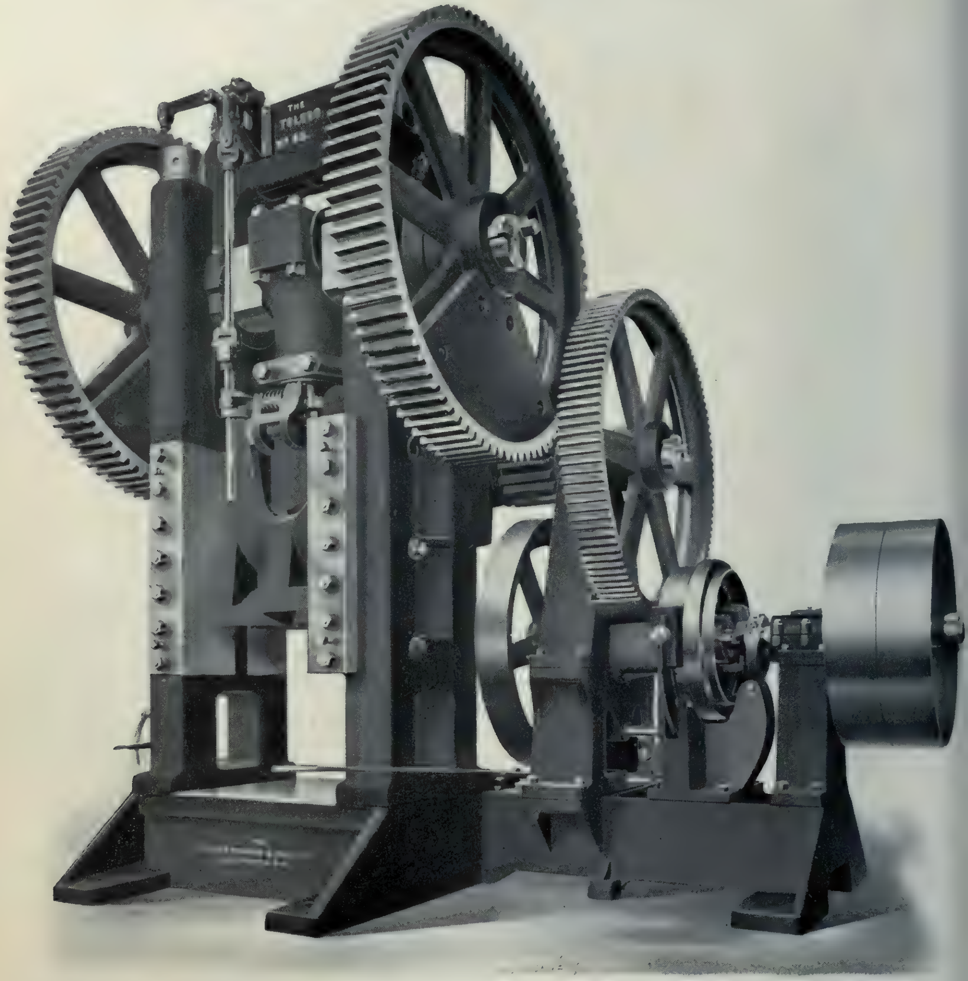


THIS Press is similar in design to the "Toledo" No. 59½, shown on page 174, but proportionately heavier and more powerful.

Gross weight, approximately 98,000 lbs.

General description, page 155. Dimensions, page 157. Code Word............

The "Toledo" No. 60 Straight Sided Power Press Double Geared, with Twin-Gear Drive

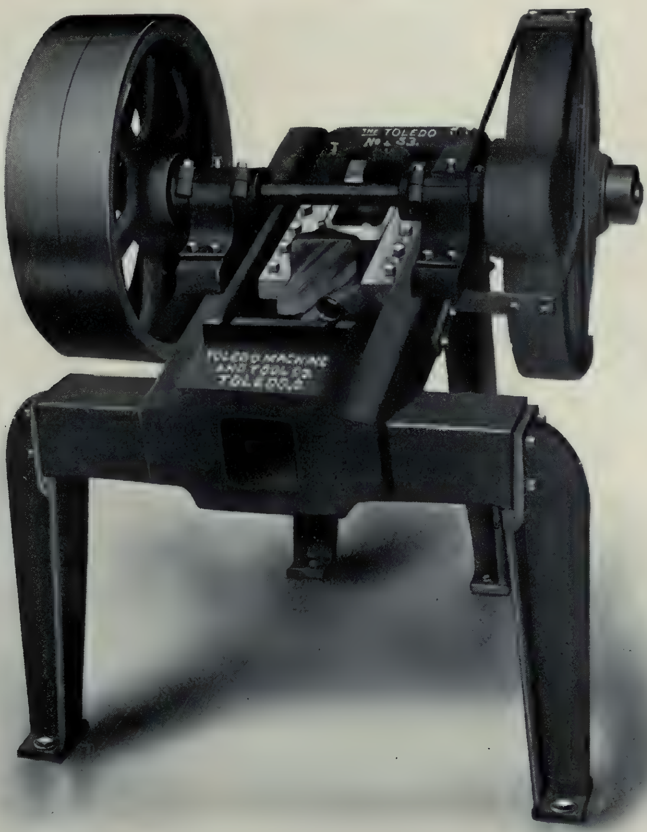


THIS Press is intended for use in the manufacture of heavy steel products, such as embossed plates for burial vaults or caskets, steel doors, parts of Pullman cars and passenger coaches, tire cases, steel axle housings, large brake drums for automobiles and other heavy work of similar nature.

The frame construction of this Press is similar in design to that of the No. 59¾ Press, but the No. 60 has capacity for even heavier work. The No. 60, as shown above, is fitted with powerful double gearing, and with twin gears on the main shaft to prevent any torsion when operating on very heavy work. The slide adjustment is controlled by a power-operated elevating and lowering device, controlled by the lever shown at bottom of left-hand housing. The clutch is a 42-inch "Toledo" Friction Clutch. Weight, 160,000 lbs. Height over all, 23 feet.

General description, page 155. Dimensions, page 157. Code Word...........

The "Toledo" No. 53 Straight Sided Press, Geared On Special Standards

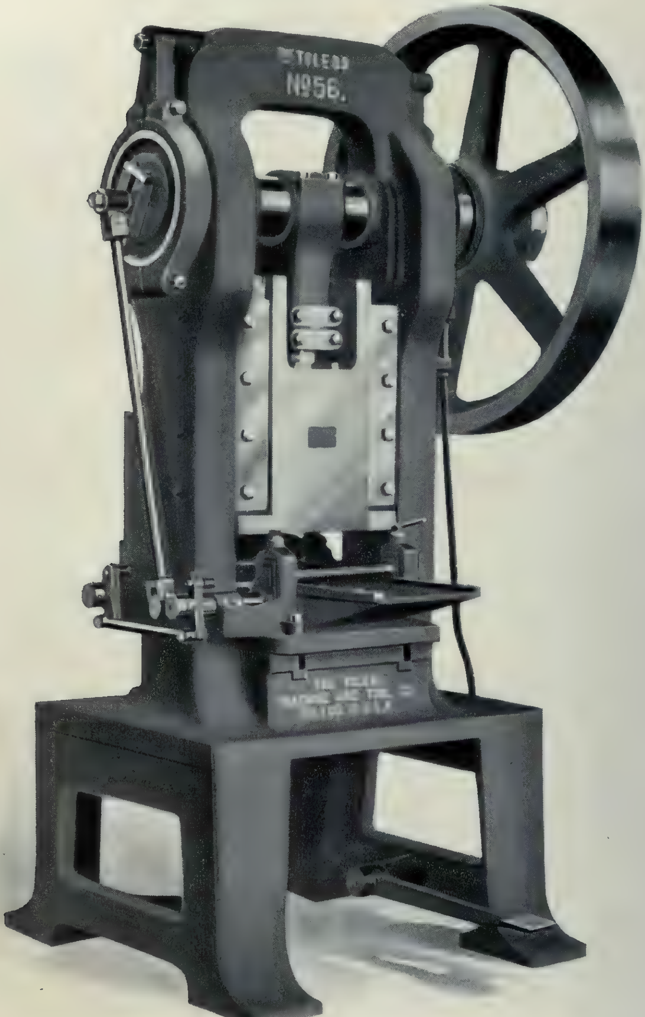


THE illustration shows our No. 53 Geared Press with long stroke and set in horizontal position. The pinion shaft is set on top or, more properly speaking, in front of the Press, in order to give free access to the under part of the machine between the standards, where trucks or boxes receive the finished work as it comes from the Press.

This position of the Press is designed to provide natural gravity feed for the bars, or other special work which may be placed in guides or holders and fed into the dies with the Press running continuously. This feature is very desirable for cutting off short rods or bars for bolts and studs, and similar work. Total weight about 3,850 lbs.

General description, page 155. Dimensions, page 156. Code Word...........

The "Toledo" No. 56 Straight Sided Press With Double Roll Feed

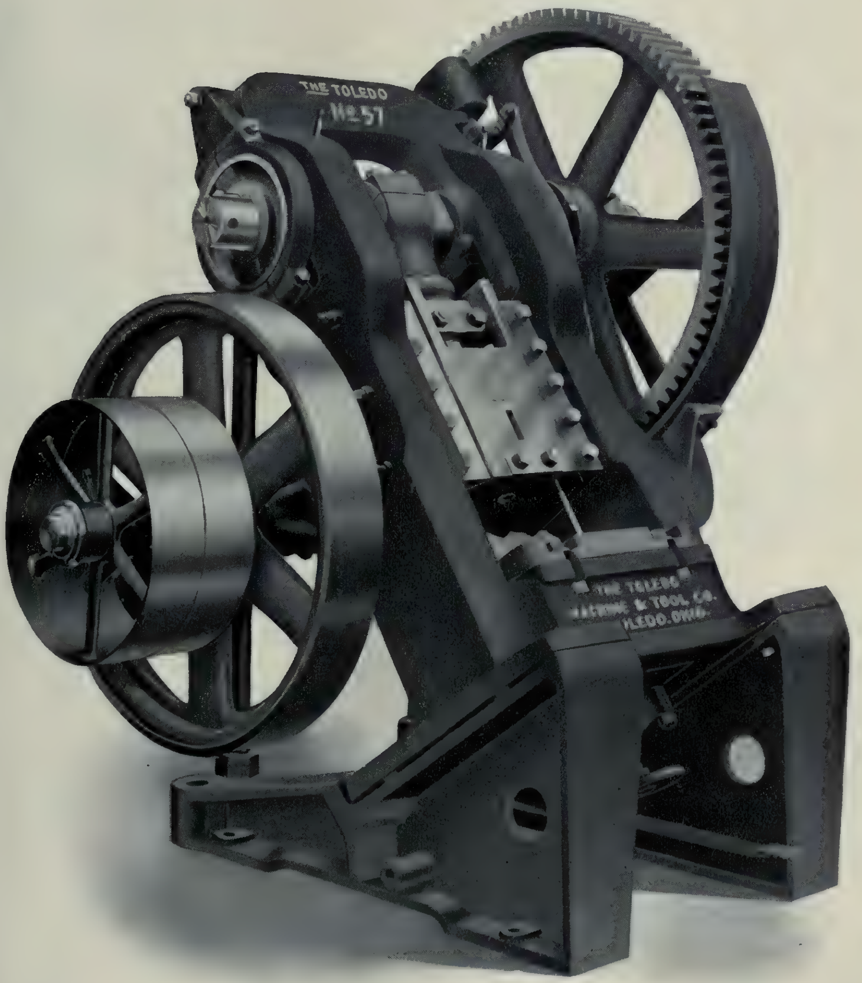


THIS illustration shows our No. 56 Press fitted with double roll automatic feeding attachment. The Press and attachments shown are designed for progressively slitting, or perforating and forming long sheets for expanded metal lath, and are adapted to a wide range of other work where a double roll automatic feeding attachment is desirable. Total weight about 8,700 lbs.

Description of Roll Feeds, page 16

General description, page 155. Dimensions, page 156. Code Word.............

The "Toledo" No. 57 Straight Sided Press, Geared Widened Pattern

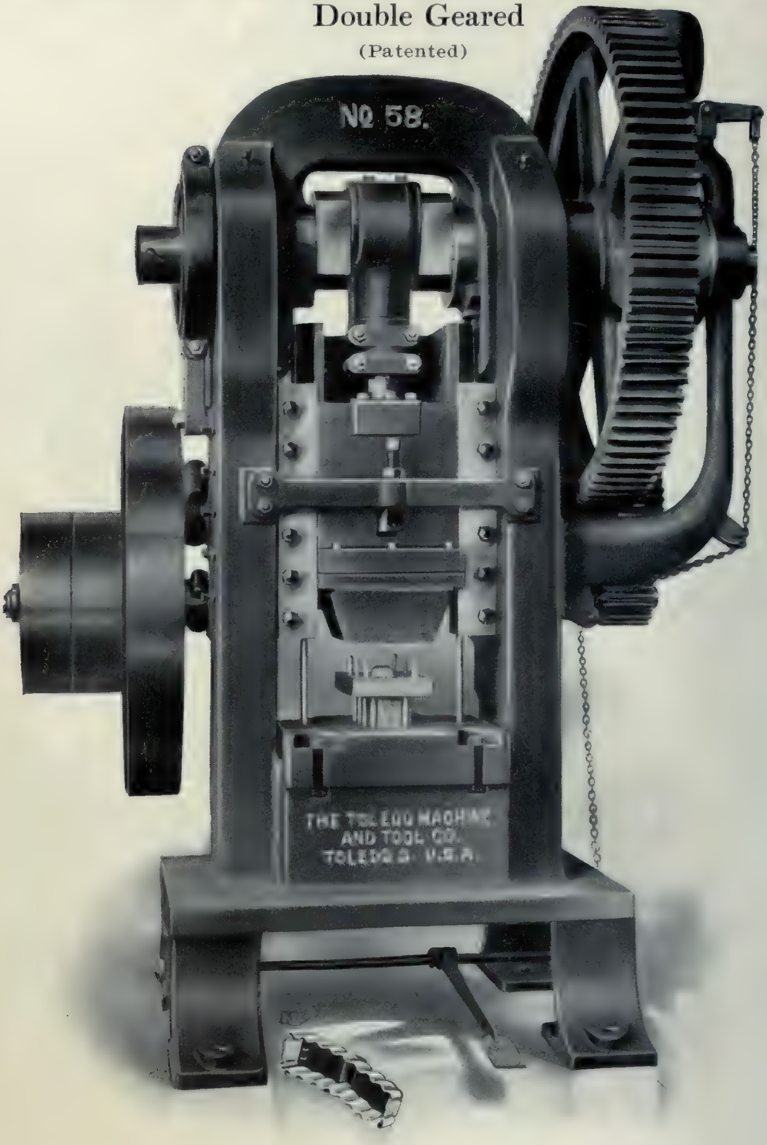


THE advantages of the inclined position of Press are fully described on page 154. This size Press is widely used for embossing heavy hinges, door plates and similar work. Total weight about 15,900 lbs.

Dimensions, page 156. Code Word...........

The "Toledo" No. 58 Straight Sided, Single Crank Press Double Geared

(Patented)



NUMBER 58, with set of dies for forming heavy steel brake shoes, is also adapted to blanking, shearing, drawing and reducing on the heavier gauges of metal, as well as to the heaviest class of hot or cold trimming, forging, forming, embossing, etc. Built with stroke or slide motion varying from 2 to 12 inches. Total weight about 26,000 lbs.

General description, page 155. Dimensions, page 157
Code Word, exclusive of dies............

The "TOLEDO" Knuckle Joint Embossing and Coining Press

THE illustrations on pages 183 and 184 show our new heavy type of Coining and Embossing Presses (plain and geared), which embody not only a number of new features, but also a number of improvements.

In place of the old construction with the slide operating from below and the belt wheel close to the floor, these Presses are arranged with overhead drive, thereby not only eliminating the danger encountered with the old style construction, but also permitting attaching bottom lift-outs and other attachments; also permitting boxes or small trucks to be brought up to or under the Press.

The smaller base and improved design of the Press throughout also cut down considerably the floor space required for these Presses.

This style Press is specially recommended for heavy embossing and swaging on such work as coins, medallions, watch cases, rail-bonds, name plates, escutcheon plates, hinges, fancy door knobs, knife handles and heavy hardware specialties.

The toggle links or arms are dense steel castings, while the link pins are high carbon steel forgings hardened and ground; ample means of lubrication for all bearings are provided throughout.

The frame is a one-piece casting for the medium and smaller sizes, and four-pieced construction with forged steel rods running entirely through the frame, for taking the entire strain, on the larger sizes. This latter construction can also be furnished on the smaller sizes where preferred, at a small advance in price.

The clutch is our well known "TOLEDO" Block Clutch, same as used on our standard form of heavy Blanking and Forming Presses.

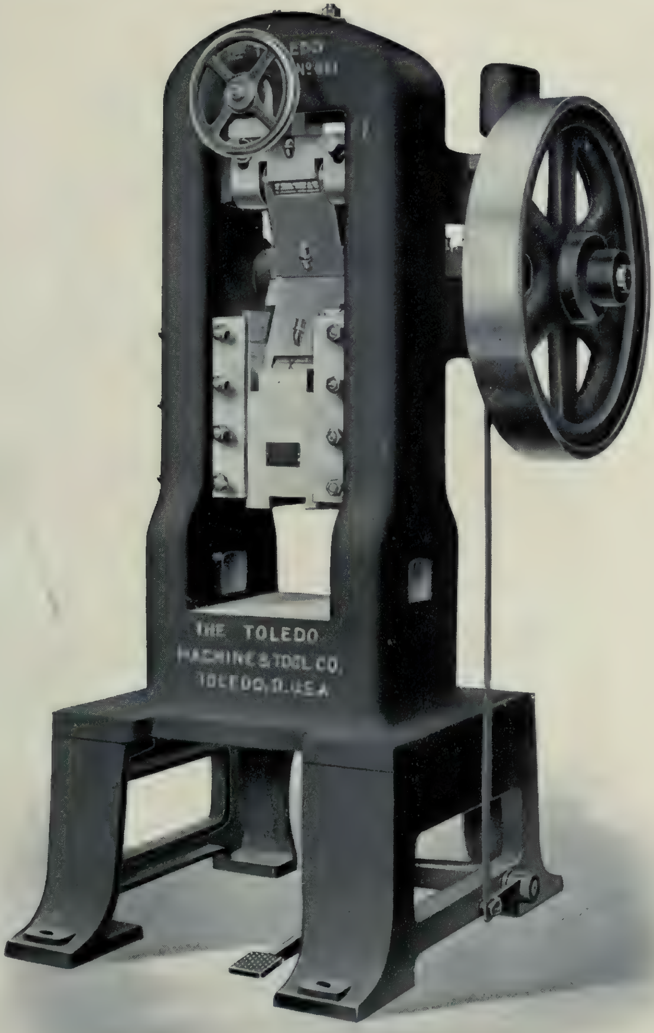
Any of these Presses can be fitted with automatic feeding attachments, or with bottom lift-out or other special features when so ordered.

The bed area, bed opening, die space and other features can be changed to suit customers' requirements.

The "Toledo" Knuckle Joint Presses

Number of Press	660	661	662	663	664	665	666
Style of Frame	Solid	Solid	Solid	Solid	Built up	Built up	Built up
Page of Catalogue		183	185			184	
PLAIN PRESS							
Pressure exerted ... tons	100	150	250	400	600	800	1000
Weight complete, about ... pounds	6050	7300	....	....	....	....	....
Standard opening in bed (round) ... inches	2	2	2½	2½	3	3	4
Width between uprights ... inches	14	16	18	21	24	28	32
Width between gibs ... inches	7	8	10	12	18	21	25
Distance bed to slide, stroke down and adj. up ... inches	8	9	10½	12	14	16	18
Standard stroke of slide ... inches	1½	1½	1½	1½	2	2	2
Adjustment of slide ... inches	½	½	½	½	½	½	½
Area of slide face, F. to B., R. to L. ... inches	7x7	8x8	10x10	12x12	14x18	16x21	18x25
Width and depth of dove tail in slide (at center) ... inches	3x1¼	3x1¼	3x1¼	3½x1½	3½x1½	4½x1½	4½x1½
Area of bed, F. to B., R. to L. ... inches	13½x13½	15½x15½	17½x17½	20x20	24x23	28x27	32x31
Thickness of bolster ... inches	2½	3	3	4	4½	5	6
Diameter and face of flywheel ... inches	32x5½	36x5½	....	....	....	....	....
Weight of flywheel ... pounds	550	750	....	....	....	....	....
Speed of flywheel ... R. P. M.	80	80	....	....	....	....	....
Height from floor over all ... inches	85	92	101	113	128	145	164
Floor space of legs, F. to B., R. to L. ... inches	44x34	48x38	50x42	54x48	58x52	64x60	72x68
Floor space over all, F. to B., R. to L. ... inches	48x44	56x50	....	....	....	....	....
Type of clutch regularly employed ...							
GEARED PRESS							
Weight complete, about ... pounds	6500	7800	13000	20000	32000	45000	60000
Proportion of gearing ...	6:1	6½:1	6½:1	7:1	7½:1	7:1	7½:1
Diameter of large gear ... inches	32	35	42	53	61	74	86
Diameter and face of balance wheel ... inches	30x5½	32x5½	38x5½	42x6½	52x7½	58x7½	64x7½
Weight of balance wheel ... pounds	400	600	800	1000	1500	2200	2800
Diameter and face of belt pulleys ... inches	20x5	24x5	24x6	28x6	36x6	38x8	38x8
Speed of belt pulleys ... R. P. M.	300	280	270	270	250	225	225
Stroke of slide, per minute ...	50	43	40	38	35	32	30
Floor space over all ... inches	50x60	56x64	62x72	68x80	80x102	94x112	102x126
Code word ...							

The "Toledo" No. 661 Toggle Embossing and Coining Press

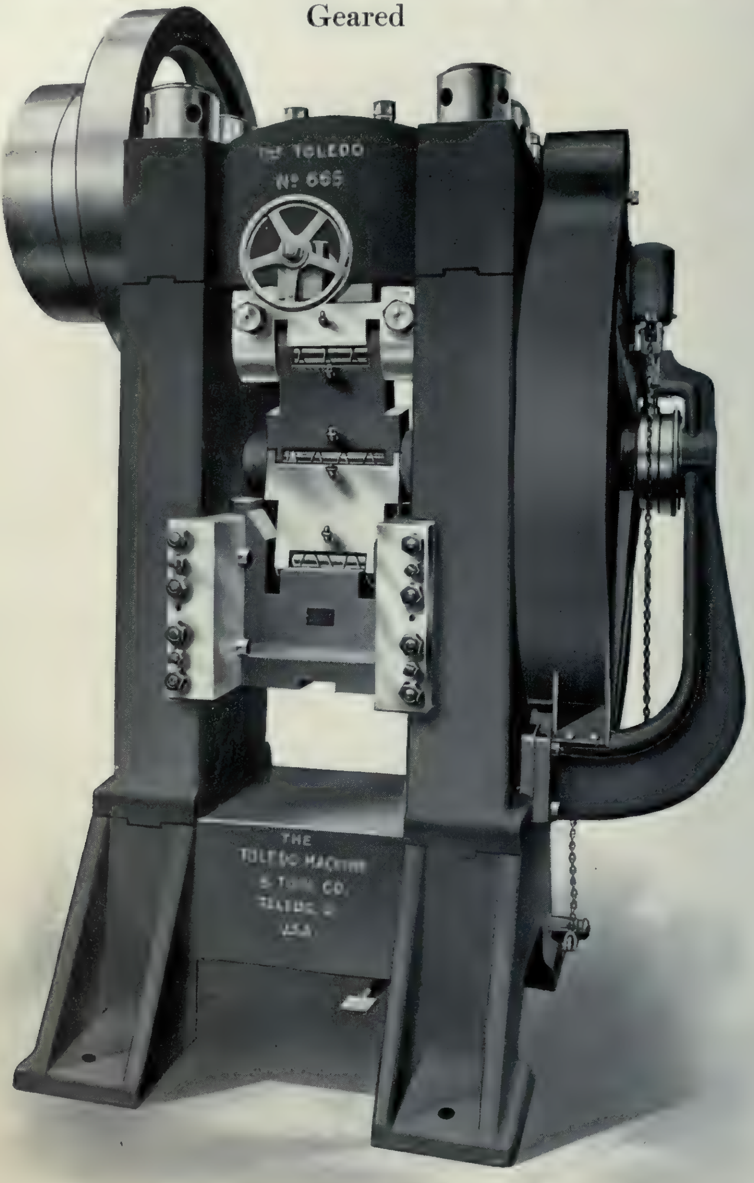


THE above illustration shows one of our standard Presses of this type, plain, not geared. This Press operates at a speed of about 80 strokes per minute, exerting a pressure of about 150 tons.

This Press is largely used for embossing telephone slugs, trade checks and knife bolsters. Total weight about 7,300 lbs.

General description, page 181. Dimensions, page 182. Code Word............

The "Toledo" No. 665 Toggle Embossing and Coining Press Geared



THIS Press is similar in construction and operation to the Press illustrated on preceding page, excepting that it is geared, adapting it to work requiring a slow, powerful pressure during only a short portion of the stroke. This Press will exert a pressure of about 800 tons and is used for embossing such work as heavy hinges, escutcheon and name plates, and heavy ornamental hardware. Weight about 45,000 lbs.

General description, page 181. Dimensions, page 182. Code Word..........

The "TOLEDO" Straight Sided Trimming Presses Single and Double Crank

WE have catered so extensively to the requirements of the drop forging trade throughout the United States, Canada and Europe, and have built such a large number of these machines that our line of Trimming Presses is now regarded as the standard in many of the leading drop forging plants. The illustrations on the following pages show a number of new features and improvements on Presses of this style, particular among which are the following:

The outer trimming slide is fitted with adjustable steel holders, the upper holder having 1-inch adjustment, with positive nut locks in place of the old form of securing these holders with ordinary set screws. These holders can be furnished either parallel or diagonal with the front of the bed of Press.

The elimination of the outboard bearing on our geared Trimming Presses not only cuts down the floor space required, but also renders these machines more readily accessible, the back-shafting being so arranged as to make the Presses accessible from either front or rear.

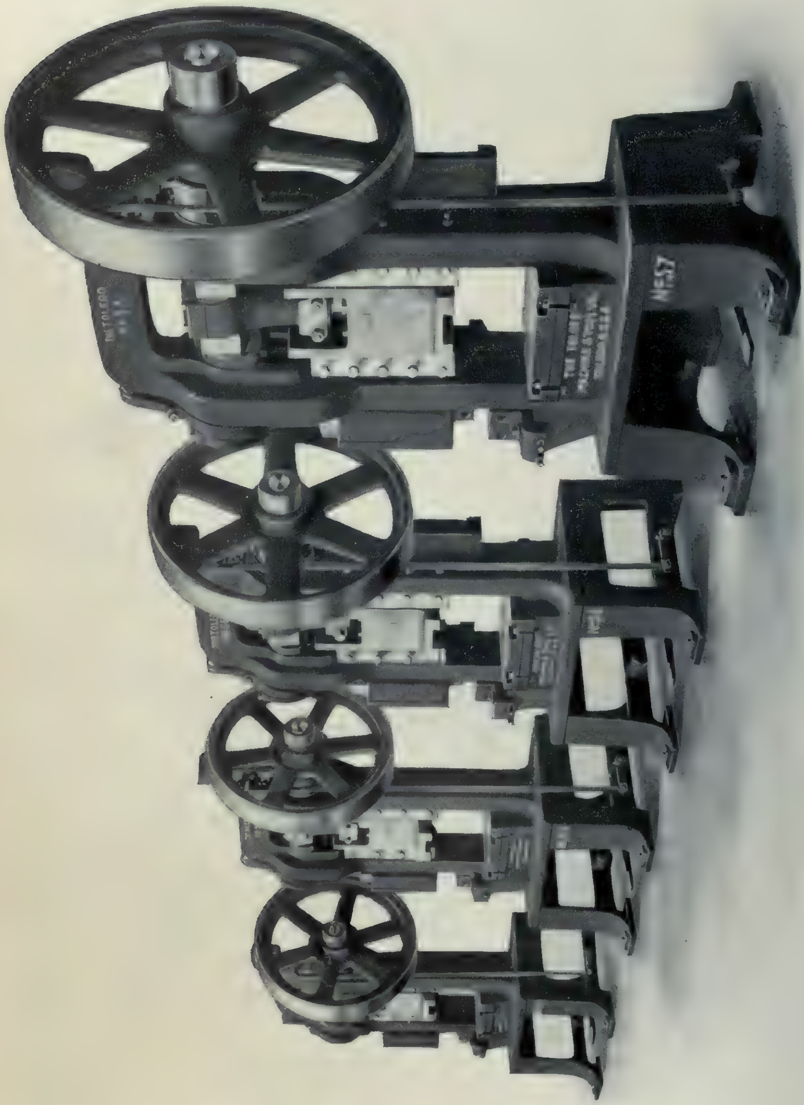
The clutch is our well known "TOLEDO" Block Clutch, with gravity releasing and controlling mechanism; this clutch is not only most positive and quick acting, but has been thoroughly tested out and has withstood the hardest usage in forge shops and other plants where dust, grit and abuse constantly subject these Presses to the severest strains.

These Presses are furnished on either high or low legs, as preferred for the convenience of operators.

The patterns of these machines are so arranged that *we can furnish either* the *single or double crank Presses* with any bed area, bed opening, stroke or die space required, and with the *width between housings varying from 12 to 72 inches.*

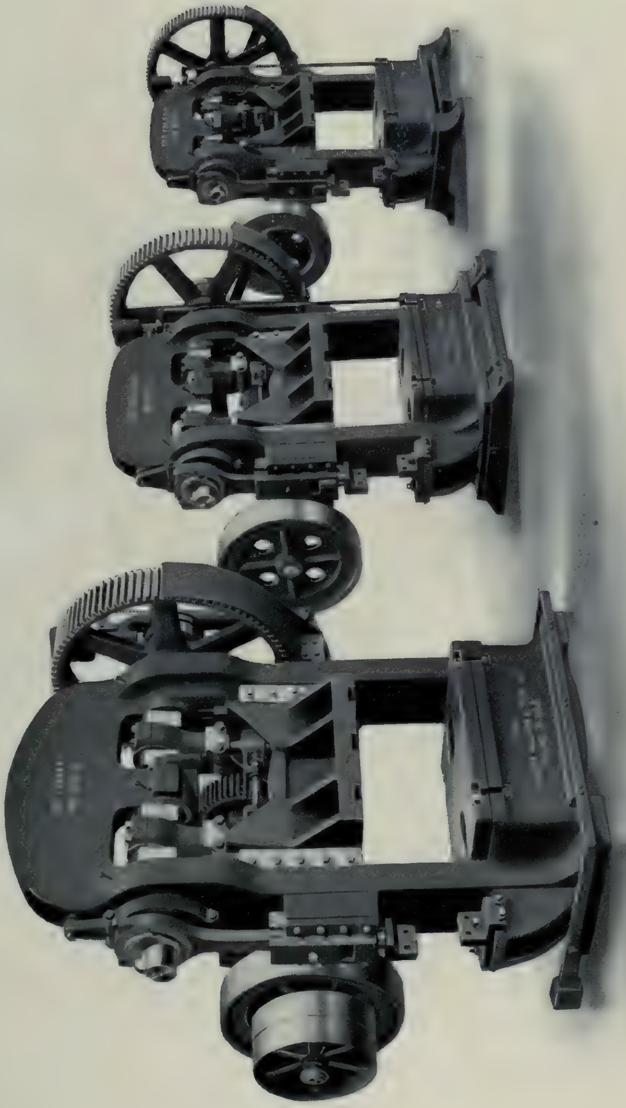
These Presses are widely used by manufacturers of drop forged crank shafts, gear blanks, wrenches and other tools, agricultural implements, hardware specialties and drop forging in general.

These Double Crank Trimming Presses are illustrated on pages 199 to 204.



This illustration shows four smaller sizes of Single Crank Trimming Presses.

This illustration shows three smaller sizes of Double Crank Trimming and Forging Presses.



We Make a Specialty of Equipping Drop Forging and Sheet Metal Working Plants Complete

The "Toledo" Single Crank Trimming Presses.

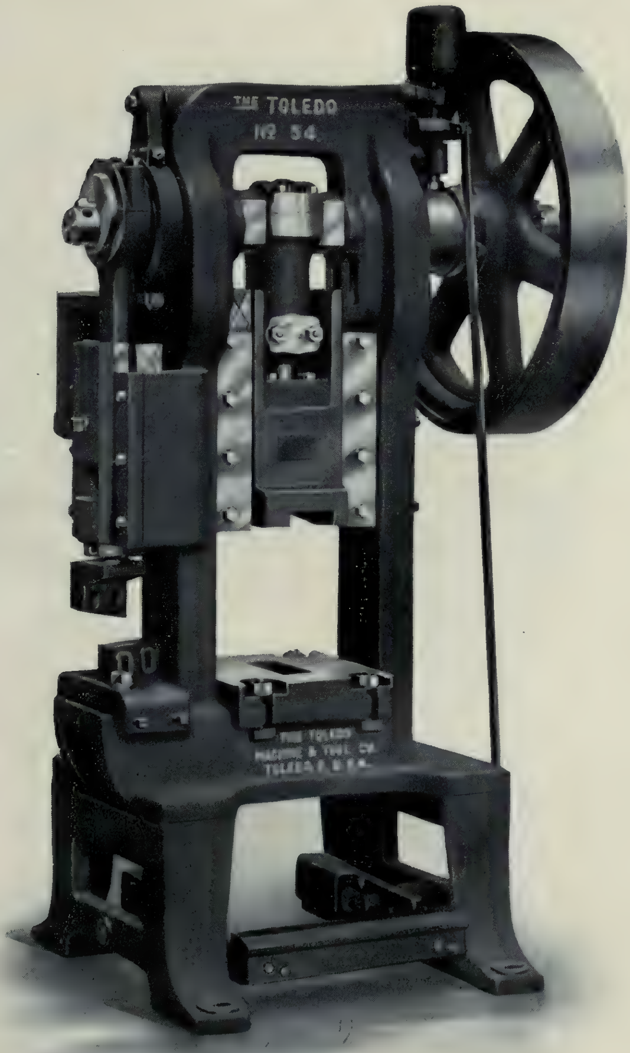
Number of Press Page of Catalogue	54 189	55 190	55½ 191	56 193	57 195	58 196	59 197
PLAIN PRESS Code Word							
Price without bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of plain bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	4300	6150	7600	9550	15200	....	....
*Area of slide flange, F. to B., R. to L. ... inches	10x8	12x9½	15x11	15x12½	18x13½	25x17	34x19
*Area of bed, F. to B., R. to L. ... inches	16x15	20x18	22x20	24x22	30x24	48x27	56x30
*Opening in bed, F. to B., R. to L. ... inches	8x8	10x10	11x11	13x13	18x14	16x16	20x20
Width between housings ... inches	15	18	20	22	24	27	30
*Standard stroke of slide ... inches	2½	3	3½	4	5	6	8
Maximum stroke of slide ... inches	5	5	6	8	10	12	18
Adjustment of slide ... inches	2	2½	2½	2½	3	3	4
*Distance bed to slide, stroke and adjustment up ... inches	14	14	16	16	20	25	28
Thickness of bolster plate ... inches	2	2¼	2½	2½	2½	3	4
Outer Slide: Distance bed to slide, stroke up ... inches	13½	13½	15	15½	19	19	23
Outer Slide: Distance center of slide to frame ... inches	4½	5½	5½	6	7	7	9
Outer Slide: Stroke of slide ... inches	2	2	2	2½	3	3	3½
Diameter and face of flywheel ... inches	36x5½	42x6½	42x6½	50x7	60x7½	....	....
Weight of flywheel ... pounds	775	1050	1050	1350	2150	....	....
Speed of flywheel ... R. P. M.	90	90	90	80	70	....	....
Distance floor to center of shaft ... inches	64	65	70	74	82	96	109
Floor space over all, F. to B., R. to L. ... inches	40x48	44x54	51x60	52x62	60x75	....	....
Floor space of legs, F. to B., R. to L. ... inches	40x36	42x40	51x42	51x45	54x50	56x54	68x55
GEARED PRESS Code Word							
Price without bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	4950	7100	9050	11800	18700	29000	48000
Proportion of gearing, about	6½:1	6½:1	7½:1	7:1	7½:1	8:1	26:1
Diameter of gear ... inches	35	42	49	54	62	74	74
Size of balance wheel ... inches	32x5½	34x5½	36x7	36x7	42x8	60x8	50x7
Weight of balance wheel ... pounds	500	600	1,250	1,250	1,600	2,000	1,250
Size of belt wheel ... inches	20x5	24x5	24x5	24x6	28x6	32x8	32x8
Speed of belt wheel ... R. P. M.	300	290	260	260	225	200	375
Strokes of slide, per minute	45	45	35	35	30	25	15
Floor space over all, F. to B., R. to L. ... inches	52x54	60x60	65x66	68x75	75x86	86x105	94x102

*Can be changed.

All Machines { 24 inch bed to floor. Block Clutch }   Trimming blades adjustable.

Double Geared

The "Toledo" No. 54 Straight Sided Press

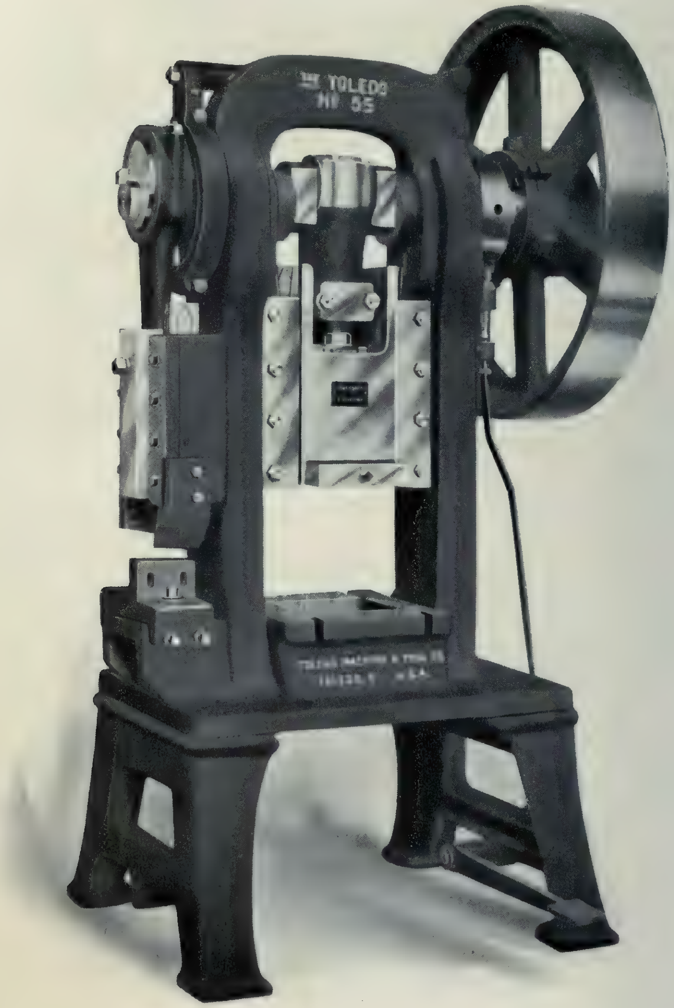


THE new form of construction of outer trimming slide described on page 185, is illustrated on Press above. This form of construction insures the longest possible use of the blades.

Adapted to work on sewing machine parts, automobile fittings and any trimming and forging within capacity of the machine. Total weight about 4,800 lbs.

General description, page 185. Dimensions, page 188. Code Word...........

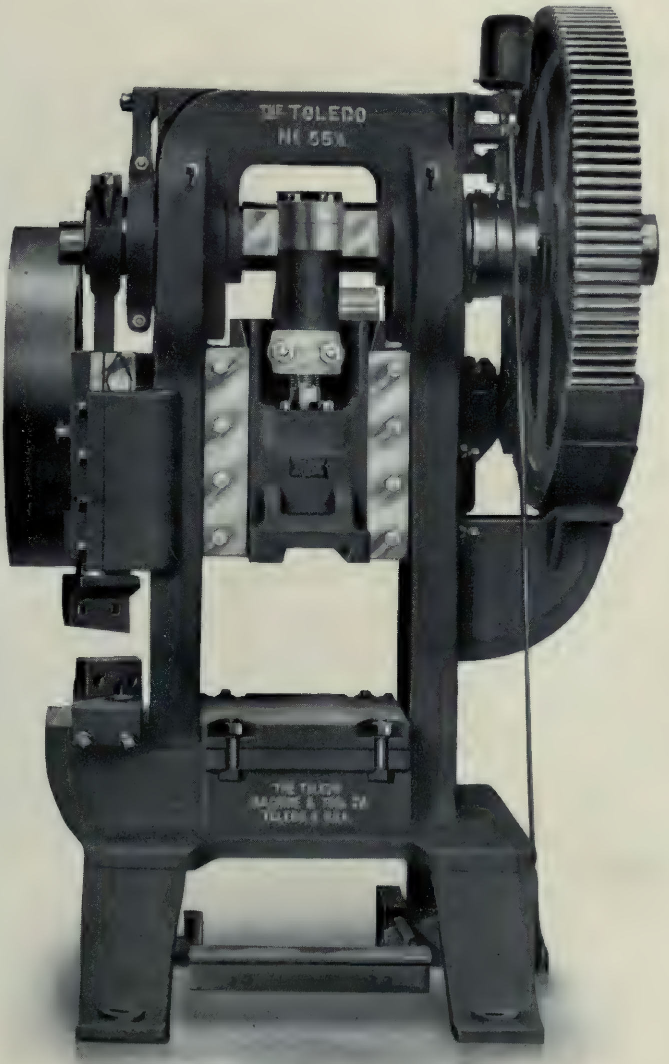
The "TOLEDO" No. 55 Straight Sided Press With Outer Trimming Slide



THE slide or head illustrated above, is of a particularly rigid construction, of the box type, and, with form of eccentric or connection shown, has the advantage of obtaining the largest shaft diameter of machine—giving great shearing power to the outer slide. Total weight about 6,150 lbs.

General description, page 185. Dimensions, page 188. Code Word...........

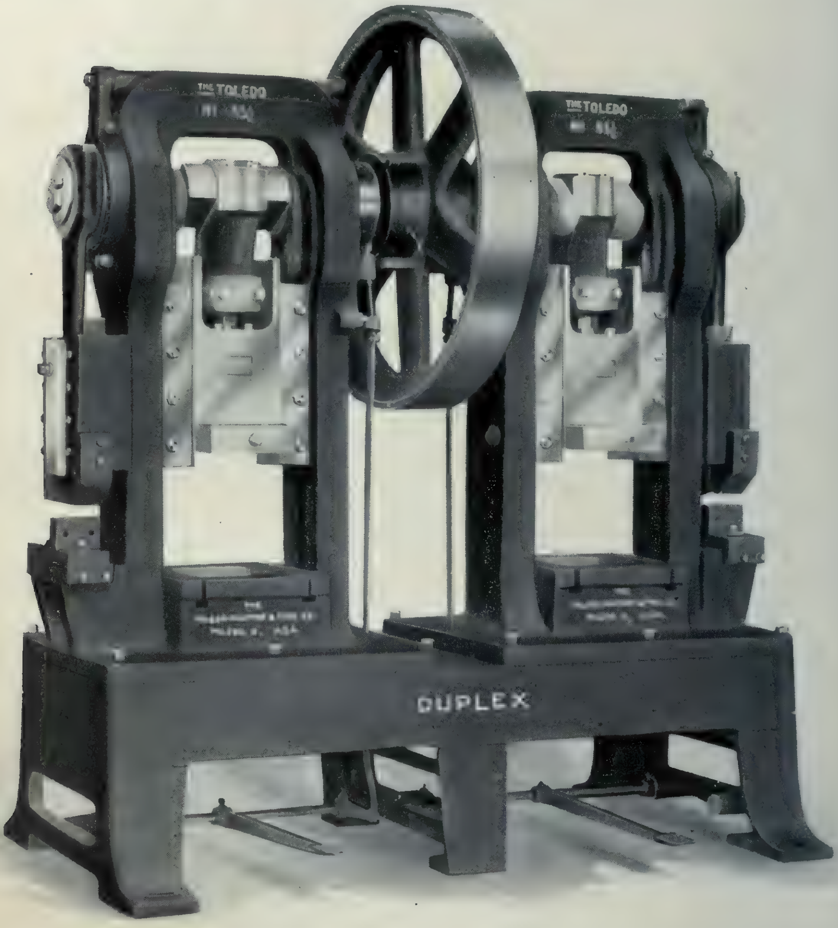
The "Toledo" No. 55½ Straight Sided Press, Geared With Outer Trimming Slide



PRESS above will trim for 1,000-lb. hammer, and besides being adapted to various classes of work, is used for trimming gear blanks, axles, wrenches, and other automobile and hardware forgings. Total weight about 9,050 lbs.

General description, page 185. Dimensions, page 188. Code Word...........

The "TOLEDO" No. 55½ Duplex Straight Sided Press



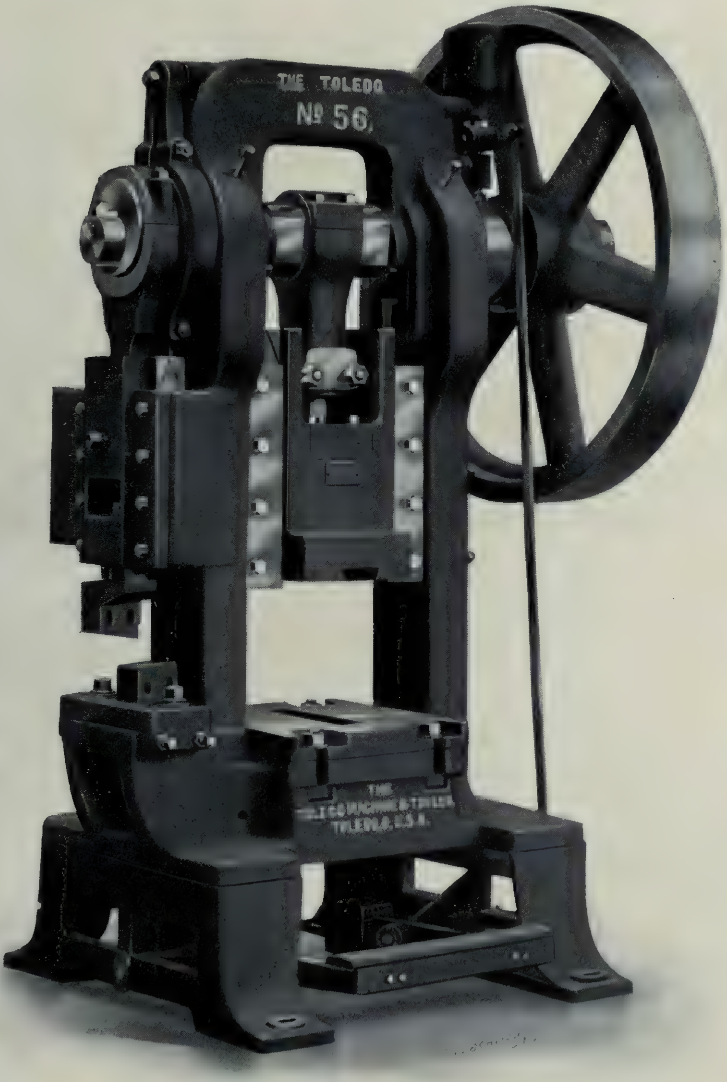
THIS Press is desirable in forge shops where floor space is limited. It is of the same general construction throughout as the No. 55 and 55½ described on preceding pages.

Each Press is fitted with independent clutch mechanism so that when both sides are used at the same time, interference with each other is easily avoided. The clutch wheel is large enough to transmit ample power.

The arrangement of the clutches is such that it is not possible for the two slides or heads to descend at the same time, so that the full capacity of each Press is assured. Weight about 14,700 lbs., and the floor space of the base is 51 inches front to back and 95 inches right to left.

General description, page 185. Dimensions, page 188. Code Word...........

The "Toledo" No. 56 Straight Sided Press

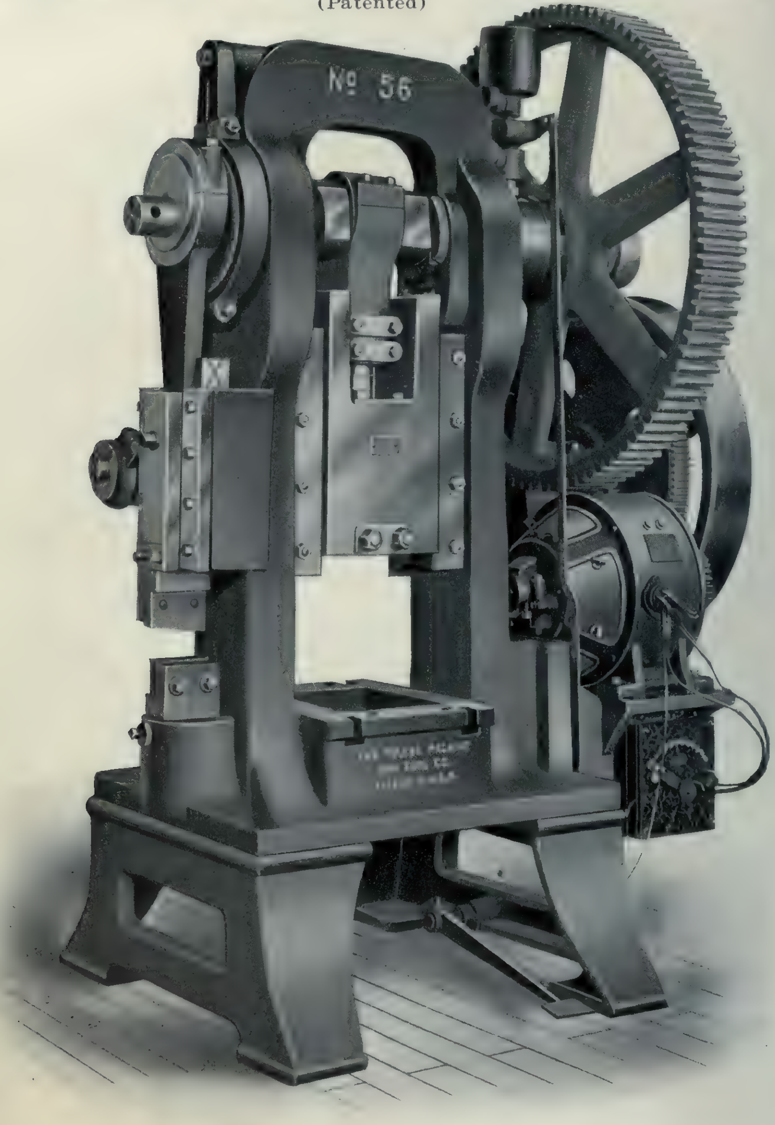


THIS Press has capacity to trim work from a 1,200-lb. hammer as well as many forgings from a 1,500 lb. hammer. Adapted to automobile forgings, crankshafts, and a general line of work within its capacity. Total weight about 9,550 lbs.

General description, page 185. Dimensions, page 188. Code Word............

The "Toledo" No. 56 Straight Sided Press, with Motor Drive

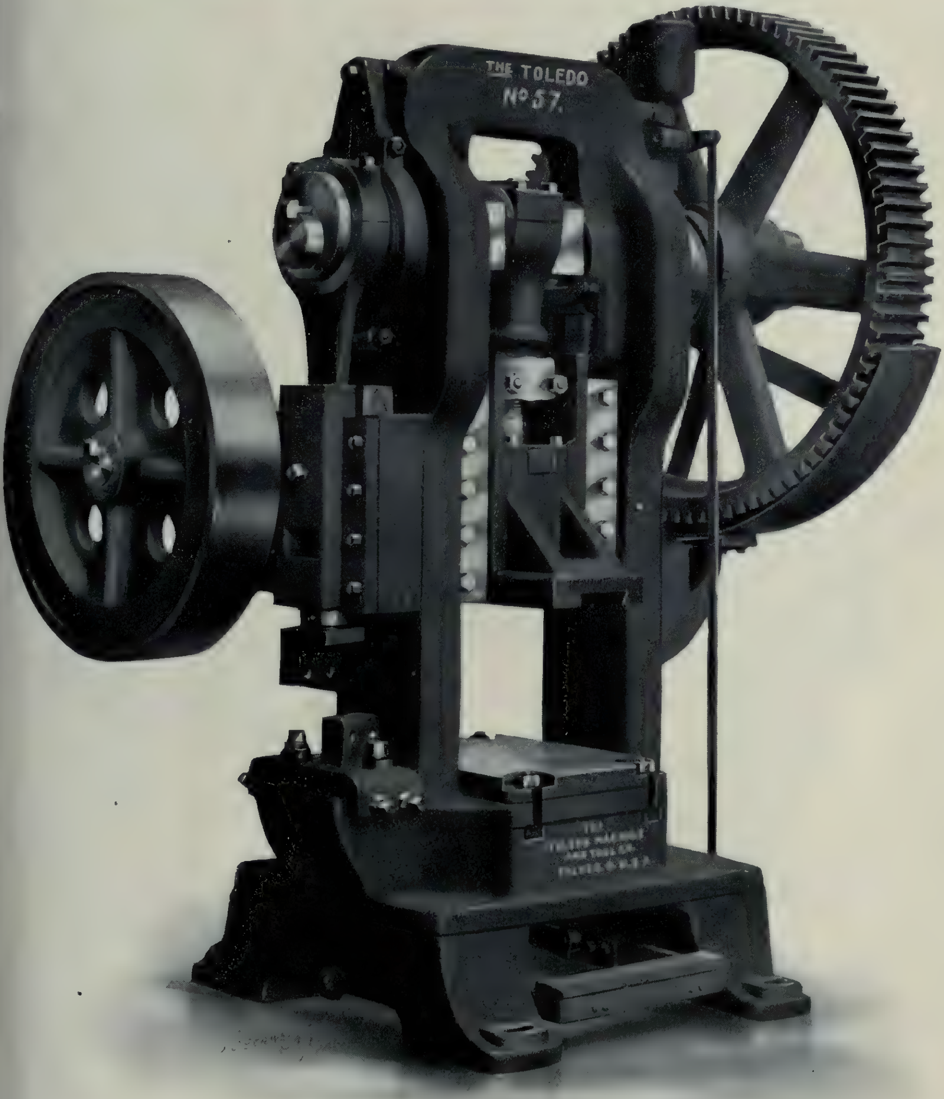
(Patented)



THIS illustrates a compact form of direct-connected motor-drive attached to our No. 56 Geared Trimming Press with outer slide. The motor is so attached as to not increase the regular floor space of the Press, nor to interfere with the accessibility of the operator to the Press front or rear. This Press has a capacity for trimming forgings from 1,200- to 1,500-lb. drop hammers. Total weight about 11,800 lbs.

General description, page 185. Dimensions page 188.
Code Word, without Motor...........

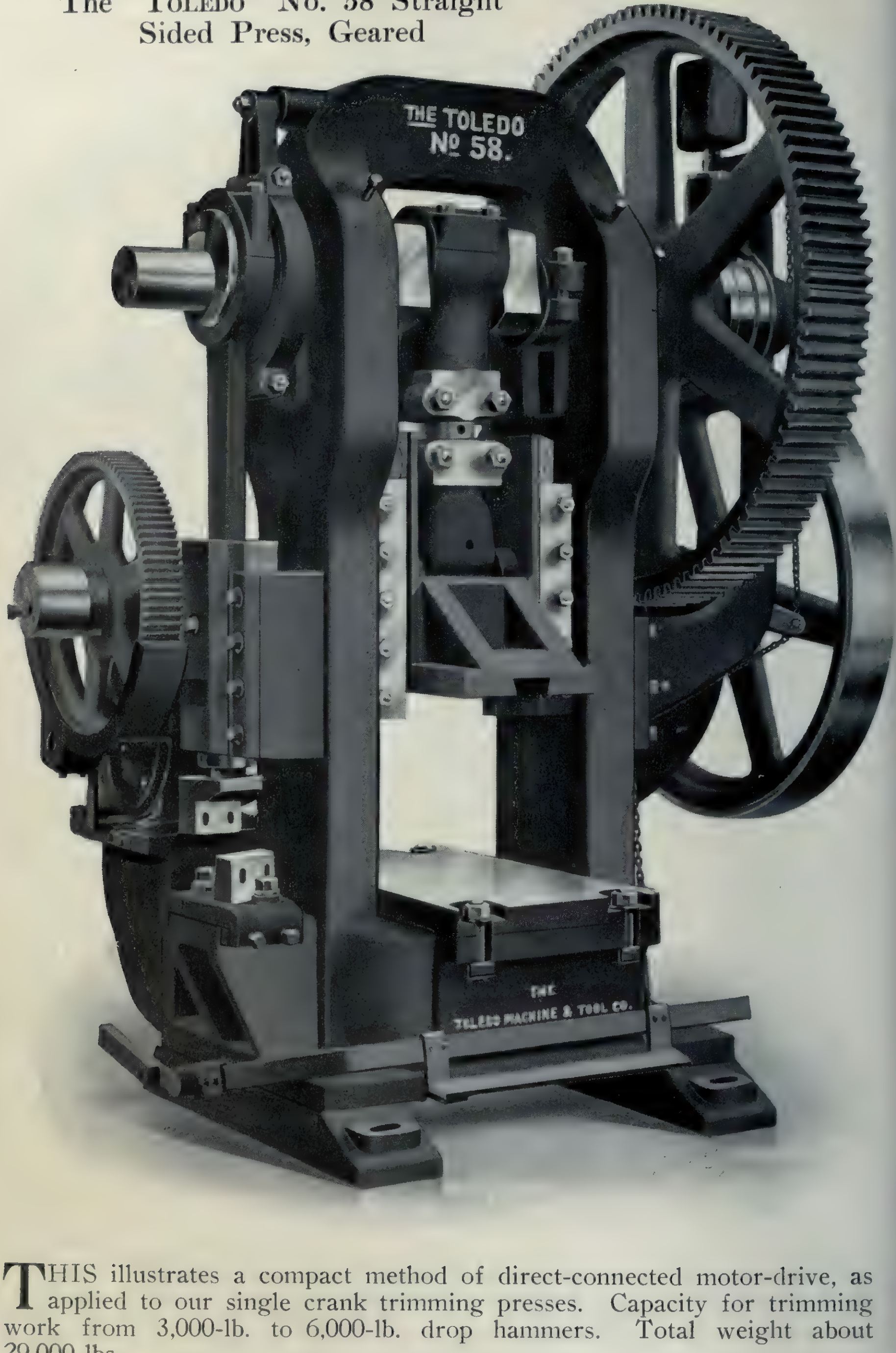
The "Toledo" No. 57 Straight Sided Press, Geared



HAS capacity for trimming automobile crank shafts, large gear blanks, wrenches and general work from 2,000-lb. and 2,500-lb. drop hammers. Total weight about 18,700 lbs.

General description, page 185. Dimensions, page 188. Code Word............

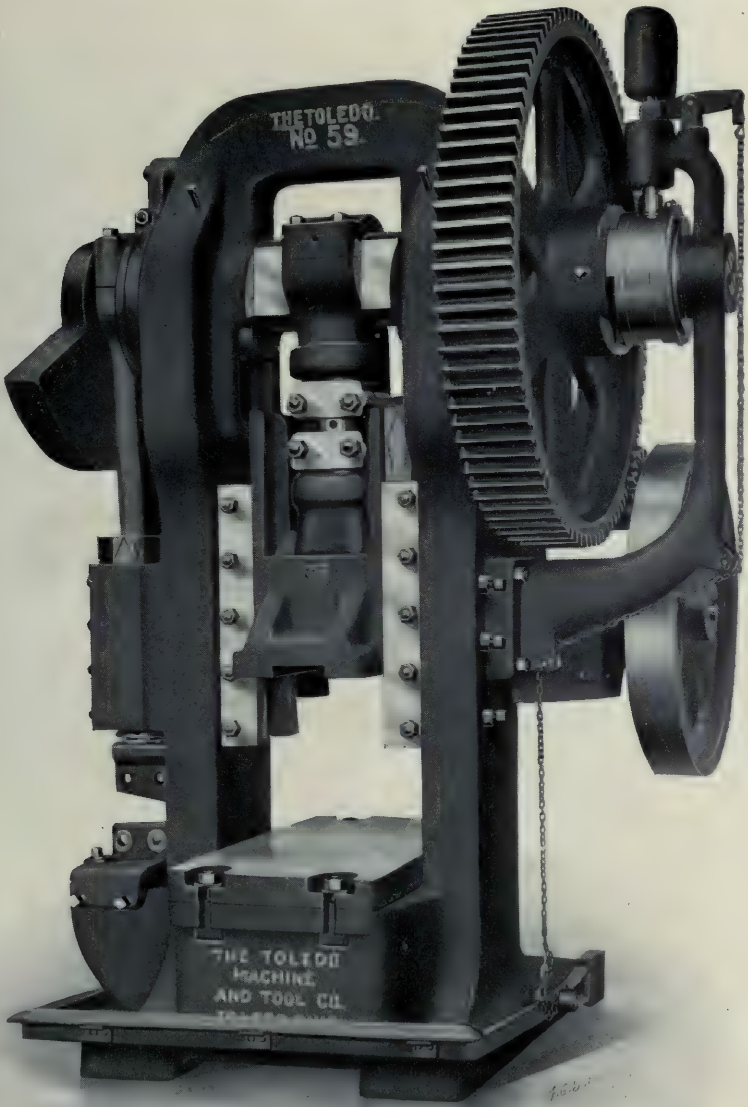
The "Toledo" No. 58 Straight Sided Press, Geared



THIS illustrates a compact method of direct-connected motor-drive, as applied to our single crank trimming presses. Capacity for trimming work from 3,000-lb. to 6,000-lb. drop hammers. Total weight about 29,000 lbs.

General description, page 185. Dimensions, page 188. Code Word............

The "Toledo" No. 59 Straight Sided Trimming Press



NUMBER 59 Trimming Press is extensively used for trimming large automobile crank shafts, ordnance parts and other heavy forgings from 6,000-lb. to 10,000-lb. drop hammers. Gross weight about 48,000 lbs.

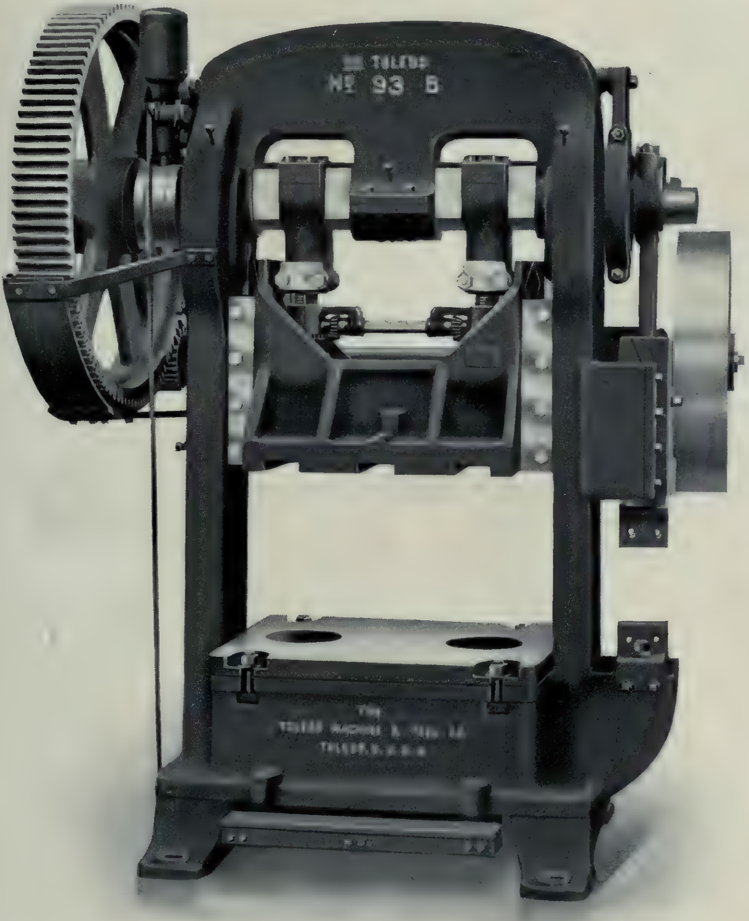
General description, page 185. Dimensions, page 188. Code Word...........

The "TOLEDO" Double Crank Trimming Presses

Number of Press		93-B	94-C	194 Duplex		95-B	96-B
Page of Catalogue		199	201	202			
				Left	Right		
GEARED PRESS	Code Word						
Price including bolster plate		$.....	$.....	....	....	$.....	....
Price of extra bolster plate		$.....	$.....	....	....	$.....	....
Weight, about	pounds	18000	27000	42000	42000	41000	62000
*Area of slide flange, F. to B., R. to L.	inches	27x34	30 x 39	16 x 36		36 x 44	42 x 48
*Area of bed, F. to B., R. to L.	inches	33x42	36 x 48	22 x 40		48 x 54	54 x 60
*Opening in bed, F. to B., R. to L.	inches	22x34	24 x 38	....	....	30 x 44	40 x 48
Width between housings	inches	42	48	40	40	54	60
*Standard stroke of slide	inches	5	6	4	7½	7	8
Maximum stroke of slide	inches	6	9	....	....	11	12
Adjustment of slide	inches	2½	3	....	....	3	4
*Distance bed to slide, stroke and adjustment up	inches	23	26	20	....	28	30
Thickness of bolster plate	inches	2½	3	4	....	3½	4
Outer Slide { Distance bed to slide, stroke up	inches	22	24½	....	....	25	25
Distance center of slide to frame	inches	6	7	....	....	7	9
Stroke of slide	inches	2½	3	....	....	3	3½
Diameter of gear	inches	54	62	61	61	62	74
Proportion of gearing, about		7:1	7½:1	7½:1	7½:1	22:1	26:1
Size of balance wheel	inches	36 x 7	42 x 8	84 x 6	84 x 6	42 x 8	45 x 8
Weight of balance wheel	pounds	1250	1600	2850	2850	1600	2,100
Size of belt wheel	inches	24 x 6	28 x 6	28 x 6	28 x 6	28 x 6	32 x 8
Speed of belt wheel	R. P. M.	260	225	300	300	375	375
Strokes of slide, per minute		37	30	40	40	17	15
Distance floor to center of shaft	inches	84	88	82	82	96	116
Floor space over all, F. to B., R. to L.	inches	68 x 96	78x108	....	....	84x122	110x140
Floor space of base, F. to B., R. to L.	inches	50 x 55	56 x 62	56x110	56x110	60x70	72 x 84
Furnished also in widths of	inches	36,48,54	40,44,54,60			48,60,72	48, 72

*Can be changed.

The "TOLEDO" No. 93-B 42-inch Double Crank Press, Geared

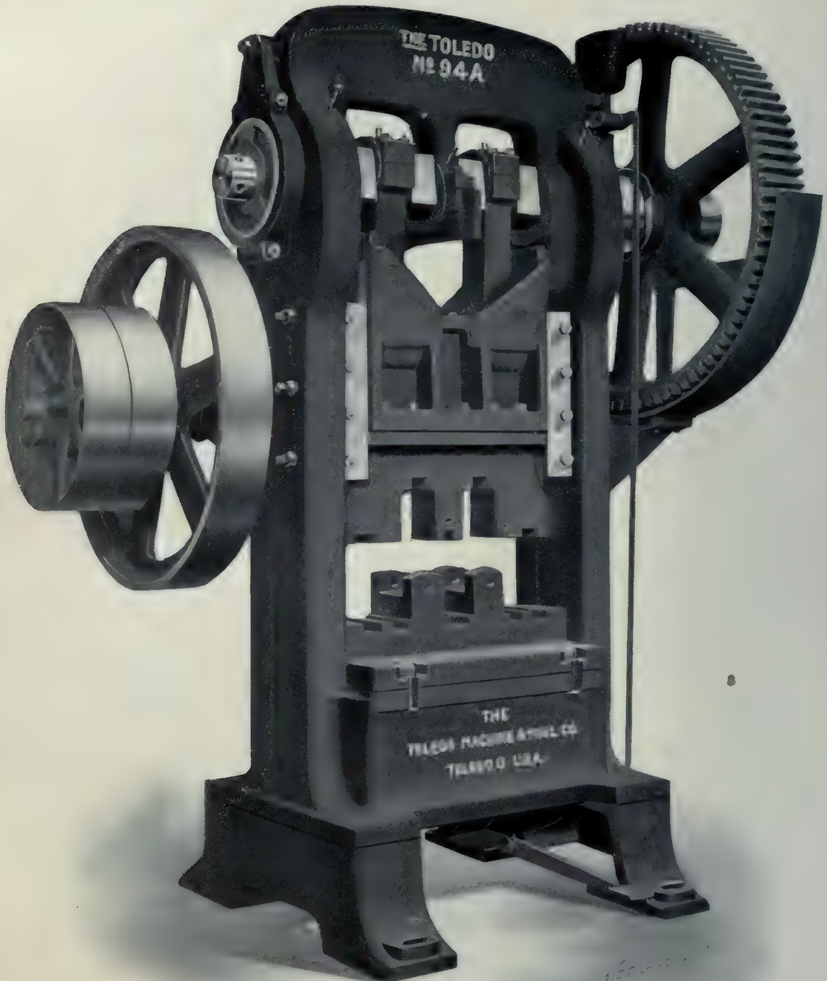


THE construction of this Press is similar to that of Nos. 94 and 95 shown on following pages, except that slide is arranged with dove tail recesses for accommodating more than one set of group dies for several operations on the same machine on various classes of work.

New style outer trimmer is also shown here on right hand side of Press instead of at left hand side, for more conveniently handling forging work where two Presses are used for one hammer. Total weight about 18,000 lbs.

General description, page 185. Dimensions, page 198. Code Word...........

The "Toledo" No. 94-A 40-inch Double Crank Power Press Geared

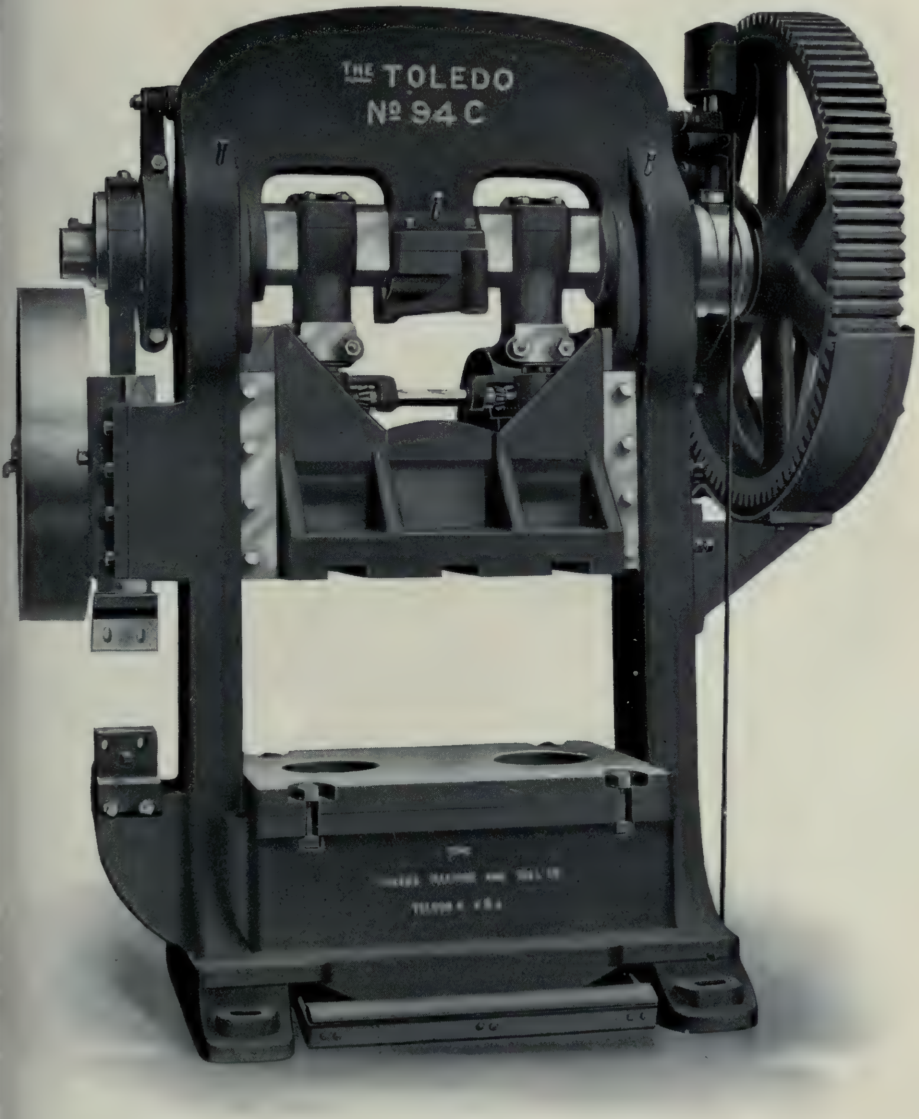


PRESS shown above is adapted and used for a general line of forgings, and particularly suited to the manufacture of railroad and miners' tools, medium and small sledge and hammer heads, pick, adze and hatchet eyes, etc. As illustrated, the slide, die space and width between housings are such as to permit fitting to this Press multiple or gang dies for work requiring several successive operations for finishing the forging. Press as shown above, has solid pitmans but can be fitted with adjustable pitmans when so ordered. Total weight about 26,000 lbs.

General description, page 185.

Dimensions except for stroke and die space are same as standard No. 94-A Geared Press on page 256 Code Word...........

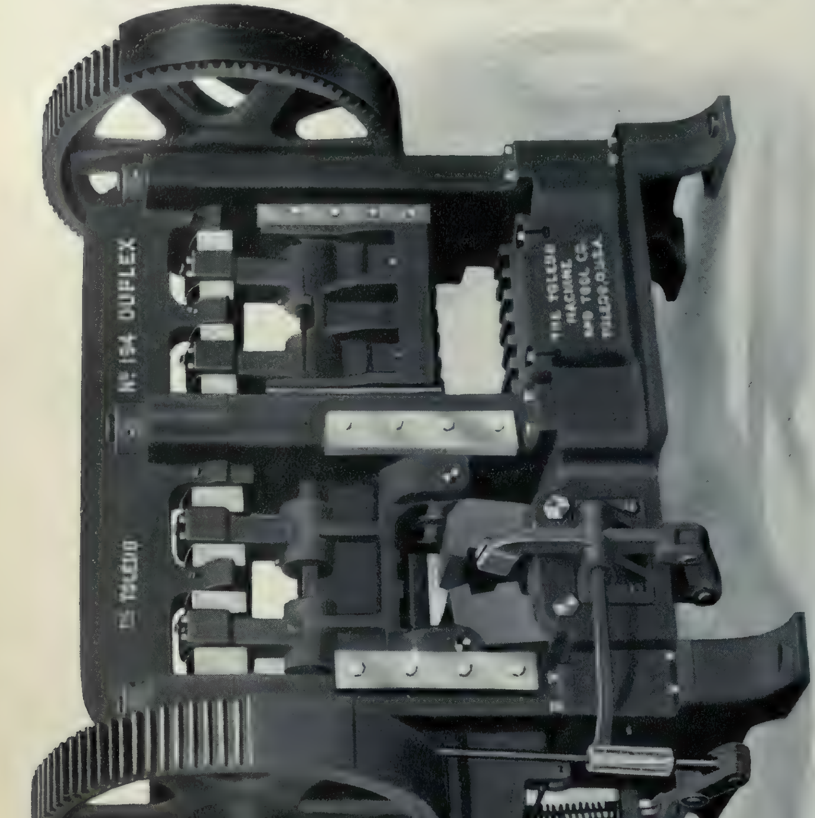
The "Toledo" No. 94-C, 48-inch Double Crank Trimming Press, Geared



ADAPTED to trimming automobile axles, brake levers and other car work, as well as for operating gang dies for progressively trimming and forming axe polls, and other hardware and agricultural implement parts. Total weight about 27,000 lbs.

General description, page 185. Dimensions page 198. Code Word...........

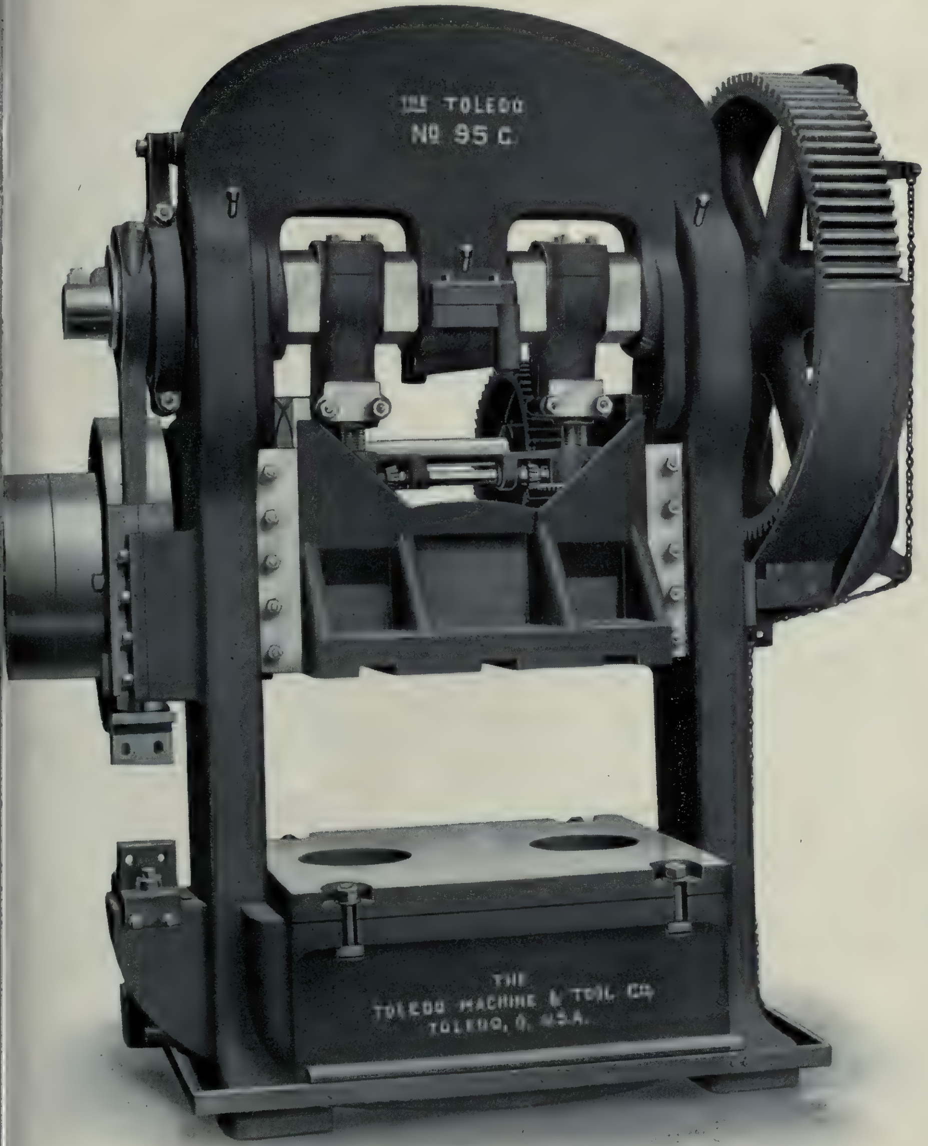
The "Toledo" No. 194 Duplex Axe Poll Press



General description, page 185. Dimensions page 198.
Code Word............

THIS illustration shows our Axe Poll Forging and Finishing Press, which is of an unusually heavy construction throughout. The right hand slide or ram runs continuously, producing the effect of a rapid forging hammer movement and, as several shapes or forms of dies can be used at one time, a decided advantage is obtained in this form of machine. Two operators are required, one for each ram or head. The operator on the right passing the work, when finished, to the operator on the left, where, at three strokes of the Press at the left hand side, the axe poll or eye is

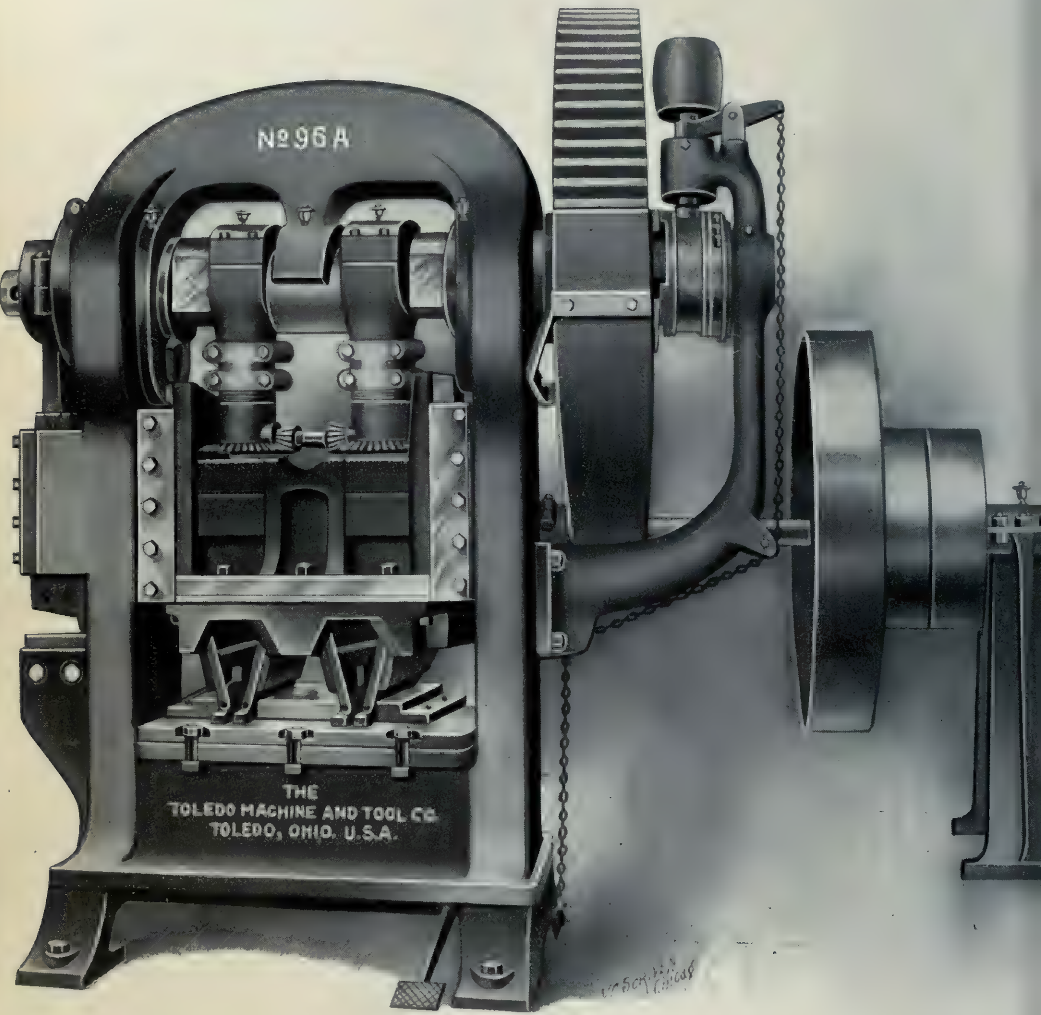
The "Toledo" No. 95-C 54-inch Double Crank Press, Geared



THIS Press is similar in design to the No. 94-C on page 201 but will handle considerably heavier work, being used for trimming heavy crankshafts, wrenches and other large, heavy forgings. Total weight about 27,000 lbs.

General description, page 185. Dimensions, page 198. Code Word...........

The "Toledo" No. 96-A 48-inch Pickeye Forging Press, Geared


No 96 A
THE
TOLEDO MACHINE AND TOOL CO.
TOLEDO, OHIO. U.S.A.

THIS illustration shows one of our Pickeye Forging Presses with outside trimming attachment. Adapted to forging pick and adze eyes, and to other work as described on preceding pages.

General description, page 185. Dimensions, page 269. Code Word...........

A FEW POINTERS REGARDING

The "Toledo" Patented Friction Roll Board Lift Forging Drop Hammers

THE *uprights* and *base* are so proportioned as to give the utmost strength and rigidity, the weight of the base being fifteen times that of the hammer head; the V-gibs are also very liberally proportioned.

All our hammer heads are steel and very long in the guides, and the entire space between the uprights is available for dies. *The hammers* are *automatic,* and either a single blow or a number of consecutive blows, either light or heavy, at the operator's will, can be had by the operation and adjustment of foot treadle, and the hammer can be stopped at any point of the down stroke before it reaches the dies. *By changing the position* of *dog* or *clamp* attached to the lifting lever, the fall of the hammer can be changed to suit the work.

By releasing the treadle immediately after tripping the hammer, only one blow is struck, after which the hammer stops at its highest point. As its only function is to operate the clamping dogs, the treadle mechanism is easily operated.

Heavy steel screws, one on each side of the base, are used for adjusting the uprights. As these screws have locking collars on the outside and are securely held in position, no amount of vibration can affect the adjustment of same.

When a change in the dies has been made to one of different height, either higher or lower, the rebound is caught by adjusting the lower dog (which carries a spring cushioned knockout pin) up or down, as required. The tapered side of the hammer head pushes back the knockout pin, allowing the vertical rod to drop, thereby immediately engaging the lifting rolls.

The bottom dog is readjusted whenever there is a change made in the lower bracket.

Both dogs are of steel and adjustable the entire length of the vertical lifting rod. This secures a finer adjustment than can be had where hammer is caught by positive stop, and also saves both the time and labor of changing the treadle which, after being once properly set, needs no further adjustment.

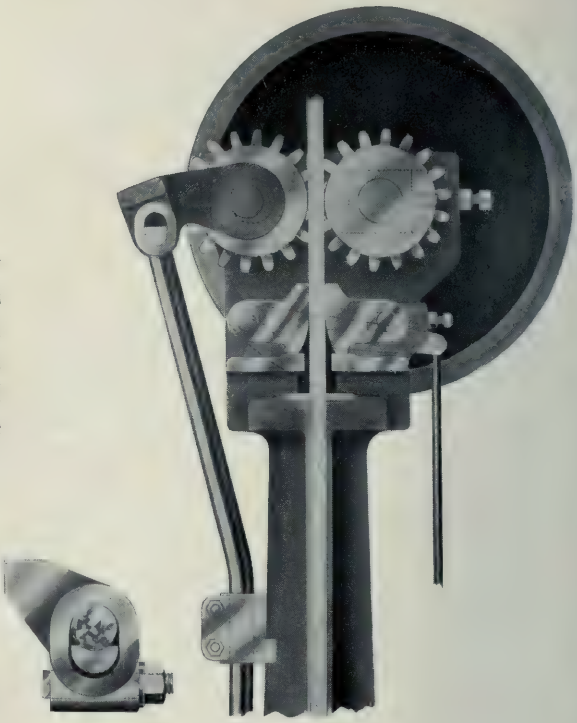
The clamping device is entirely independent of the lifting device and adjusts itself freely to any uneveness in the board. The hammer is held central with the V's at all times, and all side thrust is entirely eliminated. These clamps are, by a convenient arrangement, easily adjusted to any thickness of board, this being done from the floor line. Uneven wearing of of the board is prevented by the hammer being so held that the board does not touch either lifting roll when the hammer it at its highest point.

Compressed paper pulleys, which must be run at the specified rate of speed, are furnished with all hammers unless otherwise ordered.

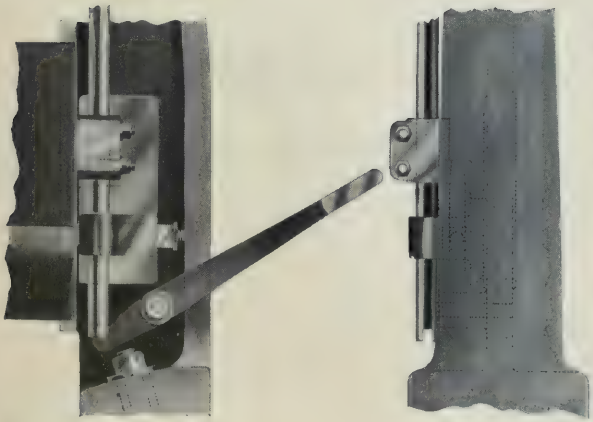
Hammers are belted from the back.

All principal nuts are held in place by locking pins, rendering it impossible for the nuts to work loose.

The lifting rolls are high carbon hammered steel forgings, and the bearings for same are bronze bushed.



SECTIONAL view showing the application of rolls, upper clamps and release, also the new form of vertical friction bar and the means of clamping the adjustable dogs on bar.



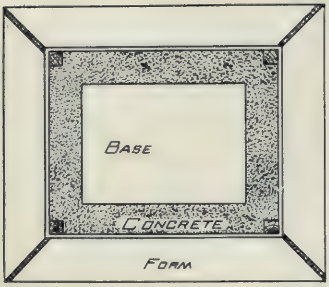
SECTIONAL and detail view showing the construction of the patented controlling mechanism for friction bar, also form of lower support and adjustment.

Foundations for Drop Hammers

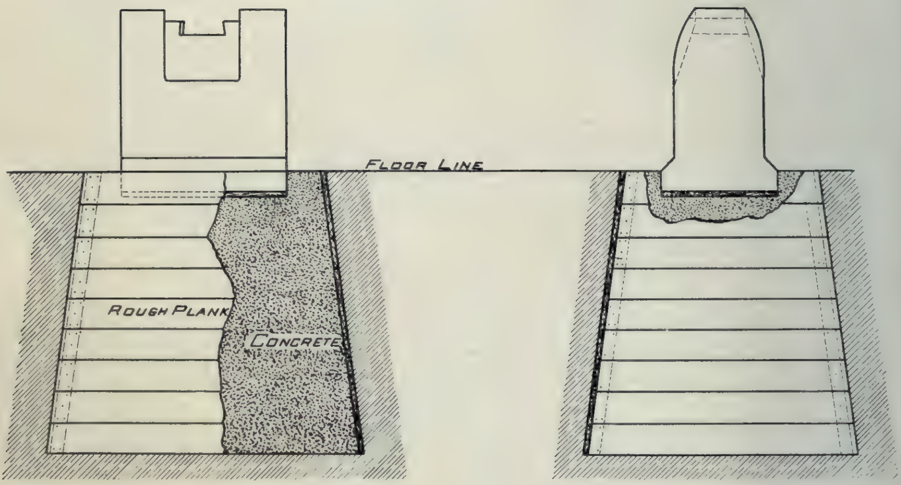
DIG a rough pit from 10 to 12 feet deep, in clay or hard soil, and deeper in soft ground. This pit, before being filled in, should be lined all around with rough lumber approximately 1½ inches thick, forming a rough box in which the foundation is set. It is of vital importance to have a solid foundation, for in addition to the risk incurred in operating a hammer on an insecure foundation, the sinking of the foundation will throw the uprights or ways out of plumb, so that the hammer head or ram, instead of sliding perpendicularly up and down between these uprights, will operate at an angle, and therefore bear unevenly on same and sometimes straining the uprights to the breaking point. To avoid belt slippage and other belt trouble it is essential, also, that the center line of the anvil, right to left, be perfectly parallel with the line shaft operating the lifting mechanism of the hammer.

The best and most modern foundations for these hammers we recommend as being of concrete, reinforced or held together by old steel rods or rails placed in the concrete both vertically and horizontally. The foundation should be allowed to dry out about three weeks before the anvil is set. When setting the anvil it should be wedged up until everything is positively plumb, and then grouted; or in other words, liquid cement should be run underneath the base of the anvil to insure a perfectly level surface under the anvil. The concrete should then be built up about an additional 4 inches high entirely around the anvil base, which eliminates the necessity of using foundation bolts, and yet at the same time insures a very rigid construction.

The sketches, as illustrated on the following page, show the general construction of foundations for drop hammers. We will gladly furnish detailed blue prints for foundations for any sized hammers ordered of us.



FOUNDATIONS FOR 'TOLEDO' DROP HAMMERS



The "TOLEDO" Friction Roll Board Lift Forging Drop Hammers

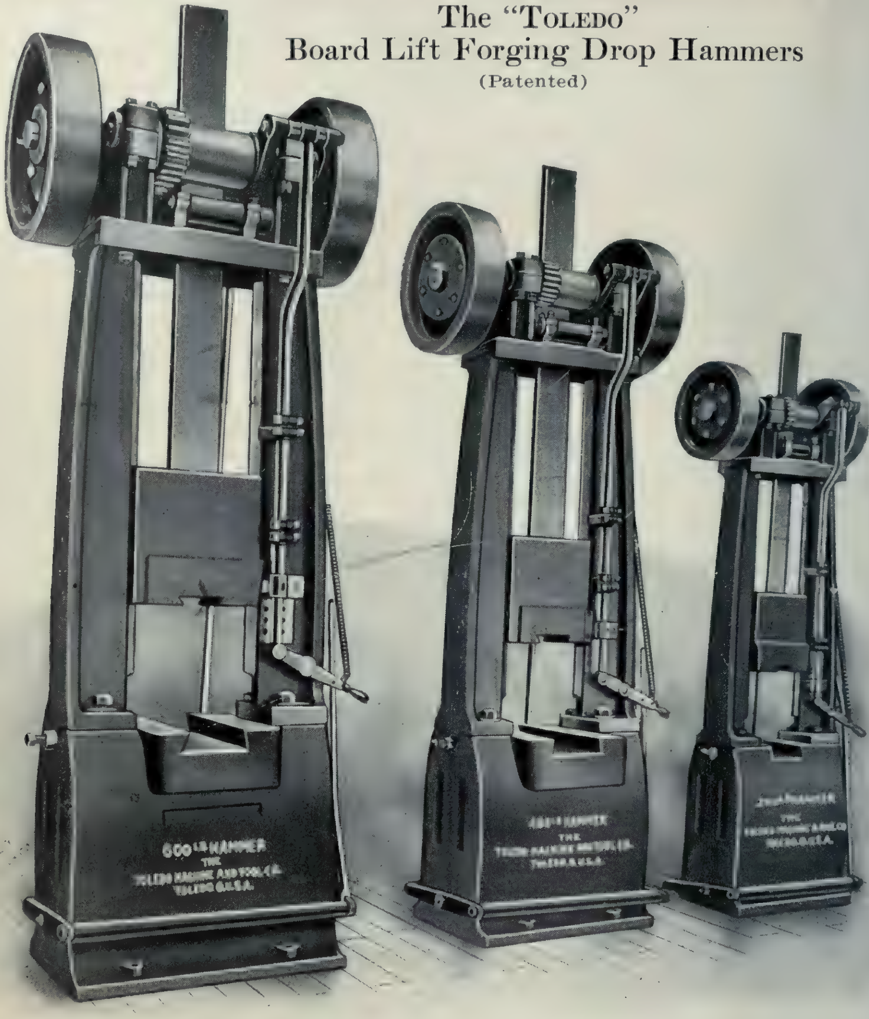
Weight of Hammer ....pounds Page of Catalogue	100 211	200 210	300	400 210	600 212	800 213	1000 214	1200 215
Code Word								
Price	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight of anvil, about ....pounds	1500	3000	4500	6000	9000	12000	15000	18000
Weight complete, about ....pounds	3600	5600	7500	11100	16000	21000	27000	31000
Maximum fall of hammer ....inches	34	36	40	45	48	52	60	60
Width between uprights at base ....inches	10	12	13½	14½	17	18	21	21
Width between uprights at ways ....inches	8	10	11½	12	14	14	16	16
Distance top of anvil to bottom of ways ..inches	4	6½	6½	7½	9	8	9	9
Distance F. to B. at top of anvil ....inches	9	10	11	12	14	16	19	19
Height of anvil ....inches	30	30	31	33	44	46	48	56
Distance bottom of anvil to pulley shaft ...inches	86	92	101	109	126	129	155	163
Height over all, boards up ....inches	126	135	150	162	180	192	228	235
Floor space of base, F. to B., R. to L. ....inches	16 x 24	18 x 26	22 x 30	24 x 34	32 x 38	34 x 42	36 x 48	36 x 48
Floor space of lifter, F. to B., R. to L. ....inches	20 x 30	22 x 34	24 x 38	30 x 42	34 x 50	36 x 54	48 x 68	48 x 68
Floor space over all, F. to B., R. to L. ....inches	24 x 38	26 x 40	30 x 52	32 x 54	34 x 60	38 x 68	48 x 82	48 x 82
Size of pulleys ....inches	14 x 3	18 x 4	20 x 5	24 x 6	28 x 7	32 x 8	40 x 8	40 x 8
Speed of pulleys ....R. P. M.	175	150	135	125	115	110	100	100

Hammers can be made with open gap, at an additional price.

Fall of hammers can be increased, at a small additional price.

The "Toledo" Board Lift Forging Drop Hammers

(Patented)



THIS illustration shows three of our Drop Hammers with geared friction roll board lift. They are of the latest design, correctly proportioned and quick acting. The geared friction roll board lift, with our *new patented device for operating vertical rod or lever* is described fully on pages 205-6.

These Hammers are used for producing medium and small size forgings for gun parts, hardware, well fittings, motorcycle and automobile parts; for stamping and embossing small parts of builders' hardware, cutlery, and for forming and embossing trimmings and stampings for stoves; forming shovels, and also for welding straps on shovels for the solid-back work.

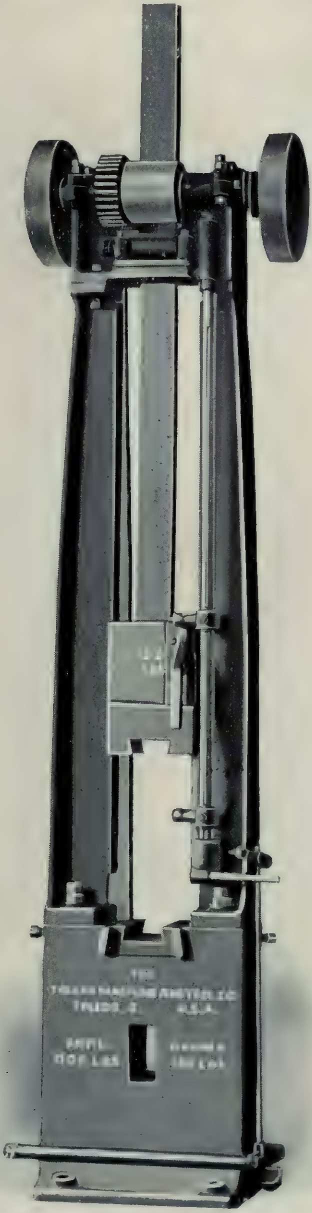
From 50- to 60-dozen shovel straps may be welded per day on one of these Hammers.

General description, pages 205-206. Dimensions, page 209.

Code Word, 600 lbs...........400 lbs. ....200 lbs...........

The "Toledo" 100-Pound Board Lift Forging Drop Hammer

(Patented)

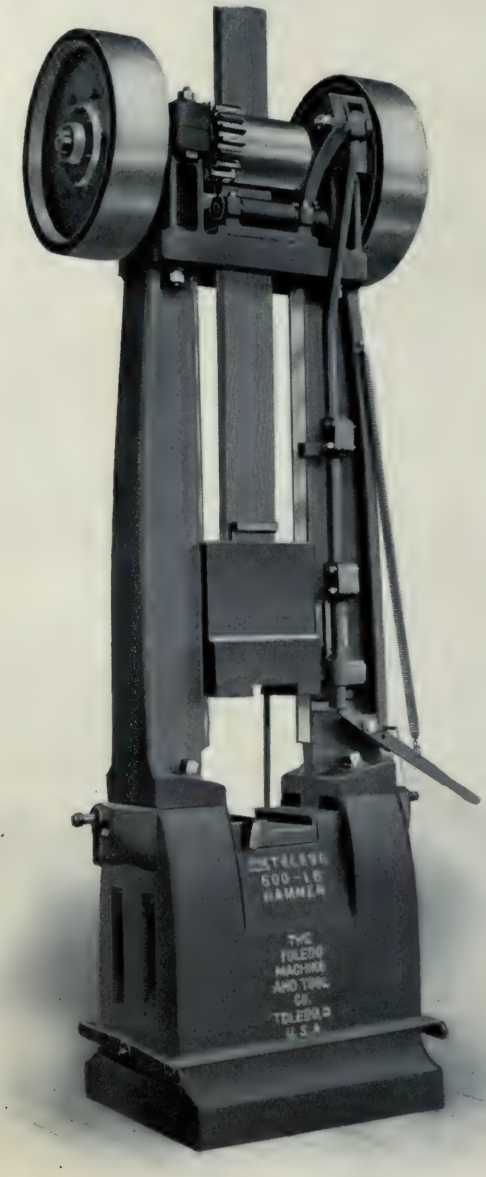


OUR 100-lb. Forging Drop Hammer, with extra long lift, is designed for light forgings; for the use of manufacturers of spoons, typewriters, adding machines, etc. It is operated by foot treadle, and by keeping treadle depressed a succession of blows may be obtained. A full description of our new patented device used in connection with these Hammers is given on page 205. Weight complete, about 3,600 lbs.

General description, pages 205-206. Dimensions, page 209

The "Toledo" 600-Pound Board Lift Forging Drop Hammer

(Patented)

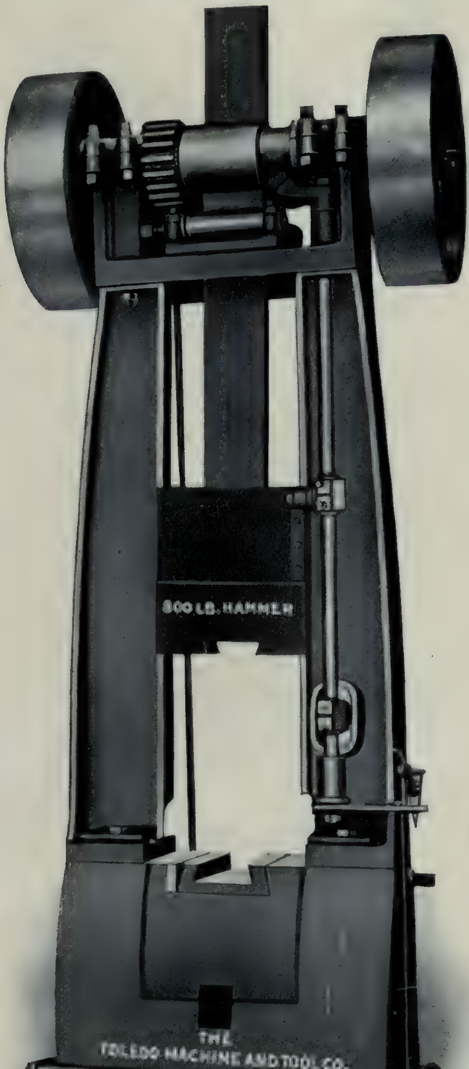


THIS illustration shows the new features embodied in our latest design in the smaller size Hammers. This size Hammer is more particularly adapted to making drop forgings for fire arms, sewing machines, cash registers, lock parts and builders' hardware. Weight complete, about 16,000 lbs.

General description, pages 205-206. Dimensions, page 209. Code Word..........

The "Toledo" 800-Pound Board Lift Forging Drop Hammer

(Patented)

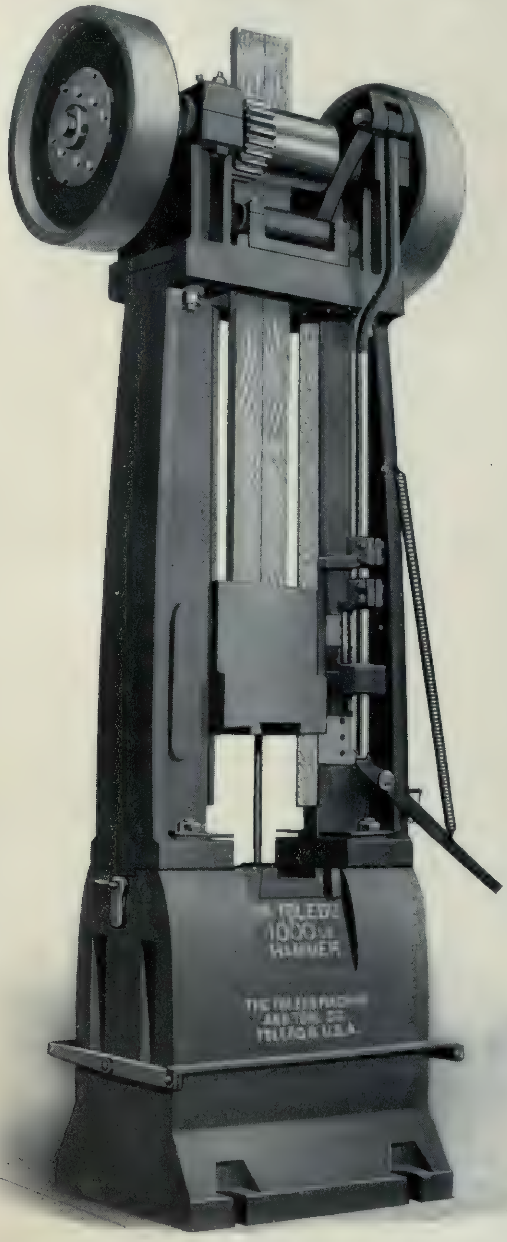


THIS Hammer is used for producing medium and small size forgings for bicycle and automobile parts, guns, wrenches, cutlery, hardware, and for a general line of forging work. Also used extensively by manufacturers of agricultural implements for forming plow noses, large size shovels, scoops, etc. Weight complete, about 21,000 lbs.

General description, pages 205-206. Dimensions, page 209. Code Word..........

The "TOLEDO" 1000-Pound Board Lift Forging Drop Hammer

(Patented)

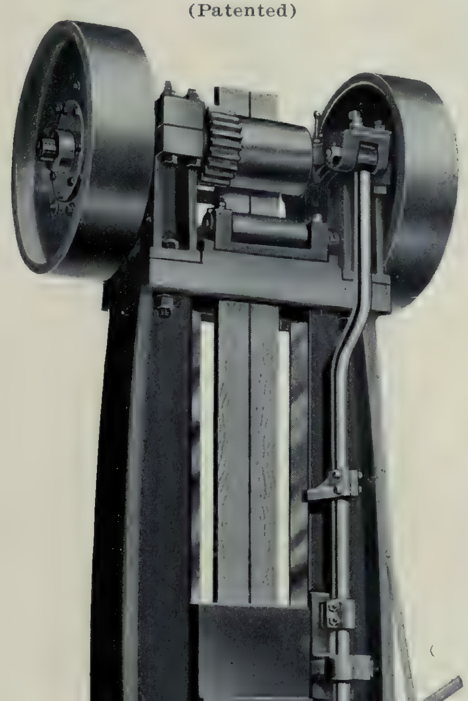


THIS illustration shows the general design of our 1000-, 1200- and 1500-lb. Drop Hammers for forging small shafts and parts, wrenches, and a general line of heavy forgings for all classes of steel and iron work. Weight complete, about 27,000 lbs.

General description, pages 205-206. Dimensions, page 209. Code Word.........

The "Toledo" 1200-Pound Board Lift Forging Drop Hammer

(Patented)



THIS cut illustrates the general design of our 1200-lb. Drop Hammer for forging automobile parts, wrenches, and a general line of heavy forgings for all classes of steel and iron work. Weight complete, about 31,000 lbs.

General description, pages 205-206. Dimensions, page 209. Code Word.........

The "Toledo" Friction Roll Board Lift Forging Drop Hammers

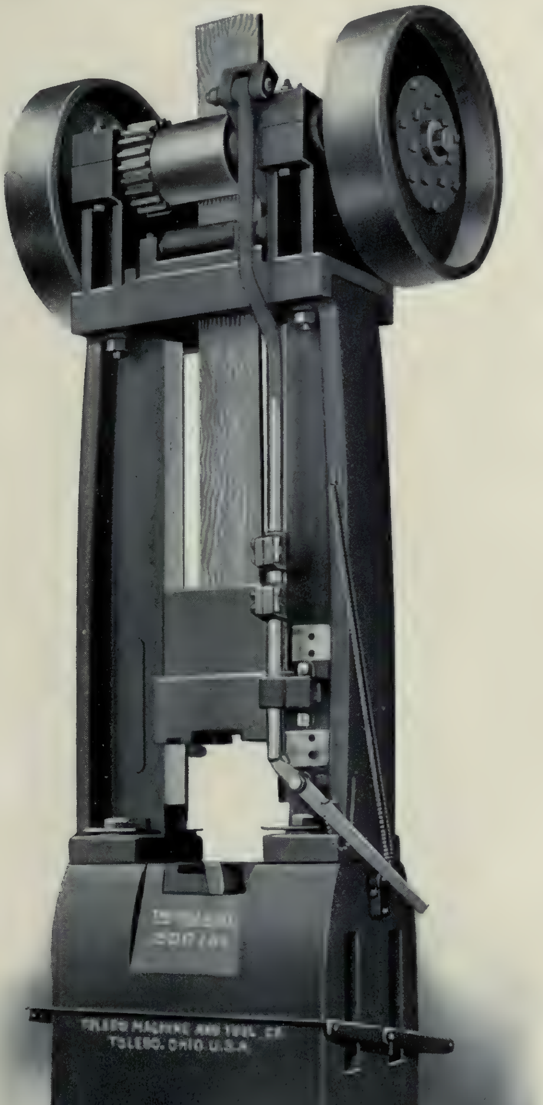
Weight of Hammer	1500	1800	2000	2500	3000	3500
Page of Catalogue	217	....	218	....	219	....
Code Word						
Price	$.....	$.....	....	$.....	....	$.....
Weight of anvil, about ... pounds	22500	27000	30000	37500	45000	67500
Weight complete, about ... pounds	39000	42000	52000	64000	74000	84000
Maximum fall of hammer ... inches	64	64	75	75	76	76
Width between uprights at base ... inches	24	24	26	26	29	29
Width between uprights at ways ... inches	18	18	19	19	22	22
Distance top of anvil to bottom of ways ... inches	10	10	12	12	12	12
Distance F. to B., at top of anvil ... inches	21	21	22	24	26	26
Height of anvil ... inches	58	64	60	66	66	76
Distance bottom of anvil to pulley shaft ... inches	178	184	197	203	213	223
Height over all, boards up ... inches	260	264	285	290	305	315
Floor space of base, F. to B., R. to L. ... inches	40 x 52	42 x 52	45 x 62	50 x 62	60 x 65	70 x 65
Floor space of lifter, F. to B., R. to L. ... inches	50 x 75	50 x 75	55 x 80	55 x 80	60 x 90	60 x 90
Floor space over all, F. to B., R. to L. ... inches	52 x 85	52 x 85	55 x 95	55 x 95	65 x 100	65 x 100
Size of pulleys ... inches	44 x 10	44 x 10	48 x 12	48 x 12	50 x 12	50 x 12
Speed of pulleys ... R. P. M.	90	90	80	80	80	80

Hammers can be made with open gap, at an additional price.

Fall of hammers can be increased, at a small additional price.

The "Toledo" 1500-Pound Board Lift Forging Drop Hammer

(Patented)

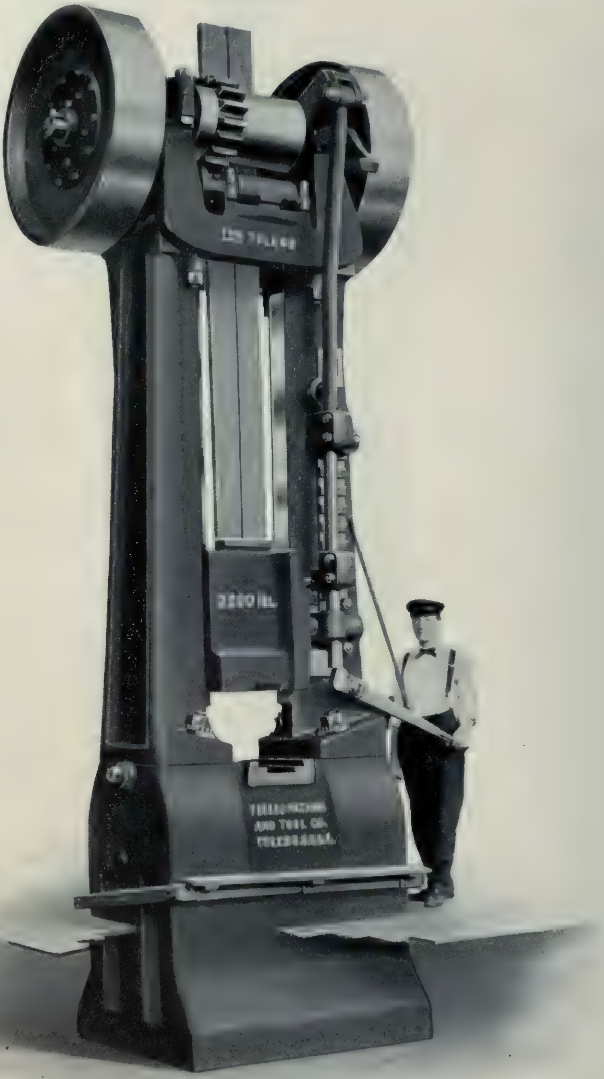


THIS cut illustrates the general design of our 1500-lb. Drop Hammer for forging automobile crank shafts, step hangers and other parts, wrenches, and a general line of heavy forgings for all classes of steel and iron work. Weight complete, about 39,000 lbs.

General description, pages 205-206. Dimensions, page 216. Code Word..........

The "Toledo" 2000-Pound Board Lift Forging Drop Hammer

(Patented)

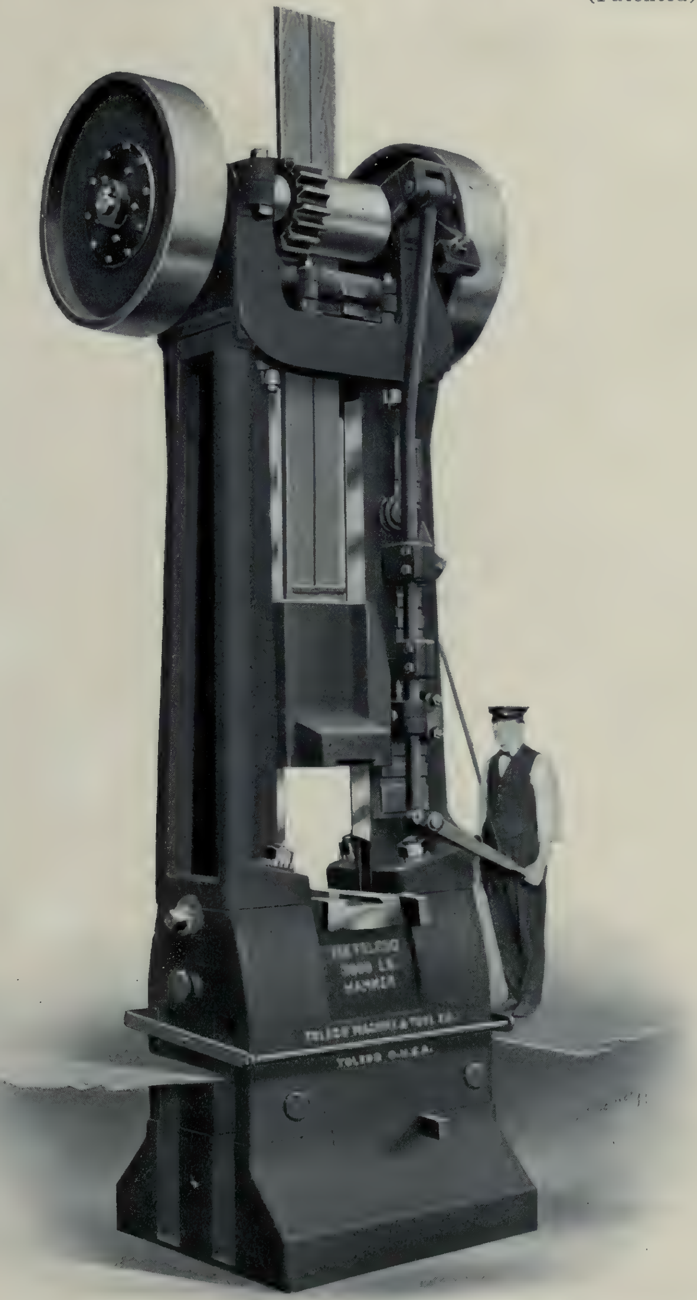


THE general design of our 2000- and 2500-lb. Drop Hammers is shown in this illustration. Used for forging automobile crank shafts and parts, railroad and miners' tools, agricultural implements, horse shoes, wrenches, and a general line of heavy forgings for all classes of work. Weight complete, of above Hammer, about 52,000 lbs.

General description, pages 205-206. Dimensions, page 216. Code Word.........

The "Toledo" 3000-Pound Forging Hammer

(Patented)



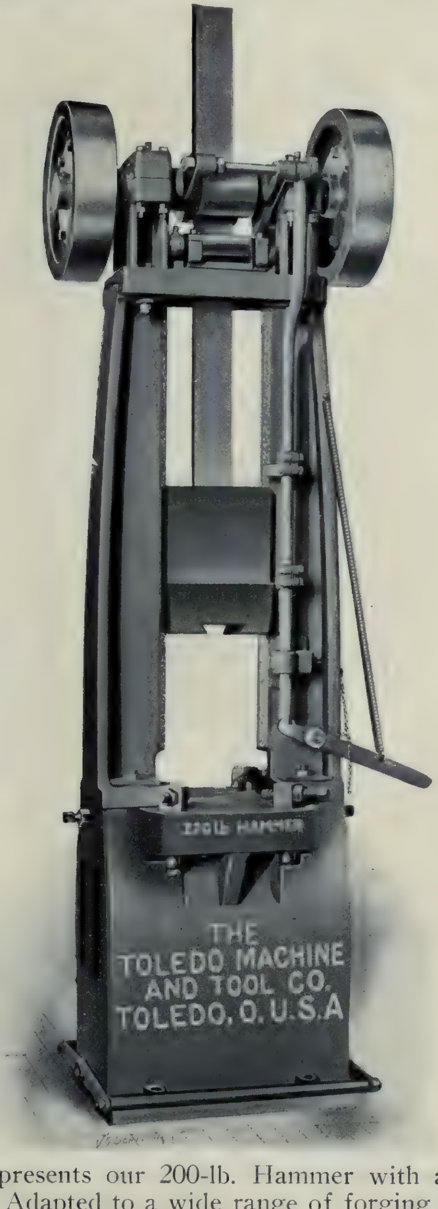
HAS capacity to forge large automobile and engine crank shafts, large wrenches, hook forgings, etc. Weight complete, about 74,000 lbs.
General description, pages 205-206. Dimensions, page 216. Code Word.........

The "Toledo" Friction Roll Board Lift Drop Hammers

Weight of Hammer	100	200	300	400	600	800	1000	1200
Page of Catalogue		221	....	....	....	....	222	....
Price, with T-slots in anvil	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price, with 4 poppets	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price, with 6 poppets	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word, with T-slots in anvil	....	....	....	....	....	....	....	....
Code word, with 4 poppets	....	....	....	....	....	....	....	....
Code word, with 6 poppets	....	....	....	....	....	....	....	....
Weight of anvil, about ..... pounds	900	1800	2700	3600	5400	7200	9000	10800
Weight complete, about ..... pounds	2800	4300	6300	9200	13200	17000	21000	22500
Maximum fall of hammer ..... inches	34	36	40	45	48	52	60	60
Area of top of anvil, F. to B., R. to L. ..... inches	12 x 10	16 x 12	18 x 13	22 x 14	27 x 17	29 x 18	34 x 21	34 x 21
Area between poppets, F. to B., R. to L. ..... inches	6 x 6	8½x8½	10 x 10	14 x 14	17 x 17	18 x 18	21 x 21	21 x 21
Distance between uprights at base ..... inches	10	12	13½	14½	17	18	21	21
Distance between uprights at ways ..... inches	8	10	11½	12	14	14	16	16
Distance top of anvil to bottom of ways ..... inches	4	6½	6½	7½	9	9	9	9
Height of anvil ..... inches	30	30	31	33	40	40	32	32
Distance bottom of anvil to pulley shaft ..... inches	86	93	102	109	126	129	139	139
Height over all, boards up ..... inches	126	135	150	162	175	184	215	215
Floor space of base, F. to B., R. to L. ..... inches	16 x 24	22 x 30	24 x 32	24 x 32	26 x 32	28 x 34	36 x 42	36 x 42
Floor space of lifter, F. to B., R. to L. ..... inches	20 x 30	22 x 34	24 x 38	30 x 42	34 x 50	36 x 54	48 x 68	48 x 68
Floor space over all ..... inches	24 x 38	26 x 40	30 x 52	32 x 54	34 x 60	38 x 68	48 x 82	48 x 82
Size of pulleys ..... inches	14 x 3	18 x 4	20 x 5	24 x 6	28 x 7	32 x 8	40 x 8	40 x 8
Speed of pulleys ..... R. P. M.	175	150	135	125	115	110	100	100

The "Toledo" 200-Pound Board Lift Drop Hammer With Broad Anvil and Poppets

(Patented)

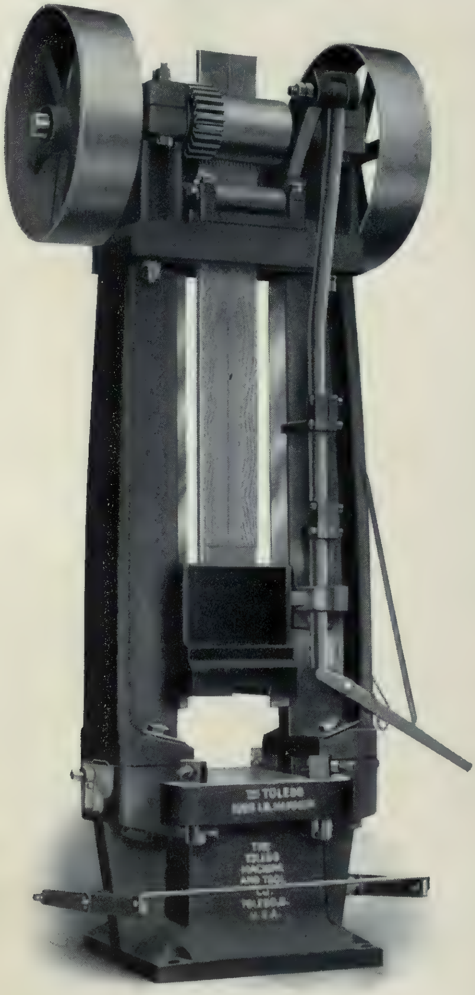


THIS illustration represents our 200-lb. Hammer with anvil, provided with four poppets. Adapted to a wide range of forging and embossing on jewelry, small cutlery, stove trimmings and other work, swaging ends of brass tubing for brass beds, etc. These Hammers can be furnished with bed arranged with poppets as shown, with dovetailed recess, or with T-slots, whichever preferred. Weight complete, about 4,300 lbs.

General description, pages 205-206. Dimensions, page 220. Code Word..........

The "Toledo" 1000-Pound Board Lift Drop Hammer With Broad Anvil and Poppets

(Patented)



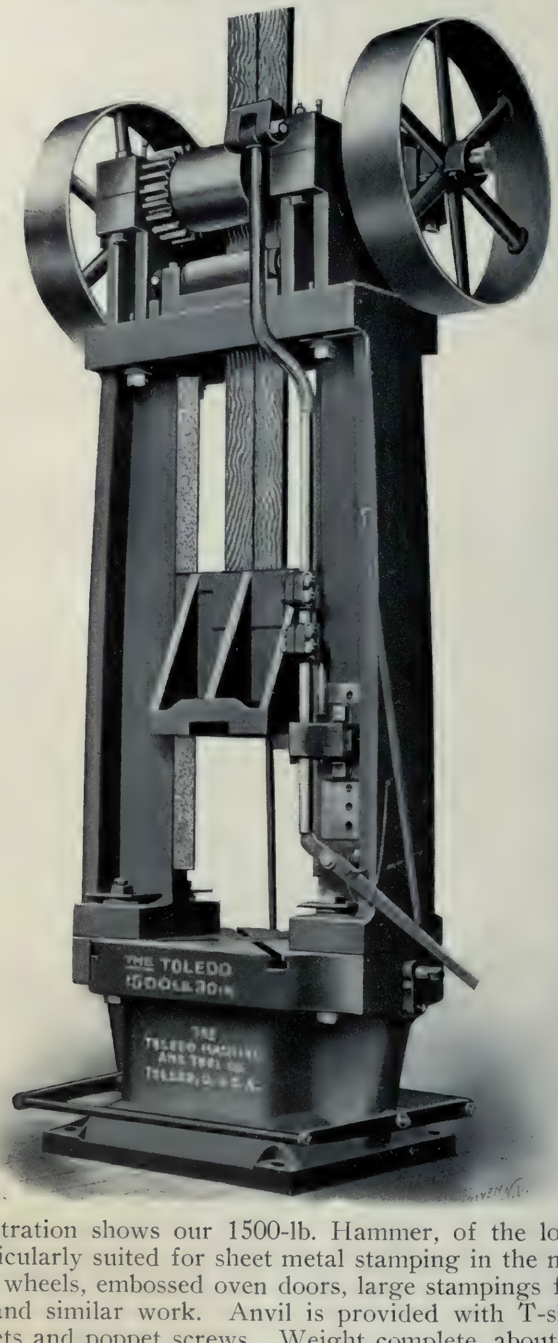
OUR 20-inch Automatic Board Lift 1000-lb. Drop Hammer, with broad anvil fitted with poppets and screws, is designed particularly for forming and embossing sheet metal stampings used in the manufacture of stamped steel and embossed stove trimmings and parts, builders' hardware, chandelier and lamp trimmings, stamped steel and enameled ware, automobile and bicycle stampings and metal specialties. Weight complete, about 21,000 lbs.

General description, pages 205-206. Dimensions, page 220. Code Word.........

The TOLEDO Friction Roll Board Lift Drop Hammers

Weight of Hammer . . . . pounds	1500	1800	2000	2500	3000	3500	5000
Page of Catalogue	224	. . . .	. . . .	. . . .	225	. . . .	. . . .
Price, with T-slots in anvil	$.	$.	$.	$.	$.	$.	$. . . . .
Price, with 4 poppets	$.	$.	$.	$.	$.	$.	$. . . . .
Price, with 6 poppets	$.	$.	$.	$.	$.	$.	$. . . . .
Code word, with T-slots in anvil	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Code word, with 4 poppets	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Code word, with 6 poppets	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Weight of anvil, about . . . . pounds	13500	16200	18000	22500	27000	31500	45000
Weight complete, about . . . . pounds	28000	31000	38000	46500	50000	56000	83000
Maximum fall of hammer . . . . inches	64	64	75	75	76	76	78
Area of top of anvil, F. to B., R. to L. . . . . inches	38 x 24	38 x 24	48 x 26	48 x 26	58 x 27	58 x 27	68 x 68
Area between poppets, F. to B., R. to L. . . . . inches	24 x 21	24 x 21	36 x 26	36 x 26	. . . .	. . . .	. . . .
Distance between uprights at base . . . . inches	24	24	26	26	29	29	69
Distance between uprights at ways . . . . inches	18	18	19	19	22	22	62
Distance top of anvil to bottom of ways . . . . inches	10	10	12	12	12	12	14
Height of anvil . . . . inches	32	32	30	30	30	30	35
Distance bottom of anvil to pulley shaft . . . . inches	152	152	167	167	173	173	150
Height over all, boards up . . . . inches	235	235	255	255	265	265	270
Floor space of base, F. to B., R. to L. . . . . inches	42 x 48	42 x 48	60 x 64	60 x 64	70 x 80	70 x 80	80 x 90
Floor space of lifter, F. to B., R. to L. . . . . inches	50 x 75	50 x 75	55 x 80	55 x 80	60 x 90	60 x 90	75 x 126
Floor space over all . . . . inches	52 x 85	52 x 85	55 x 95	55 x 95	65 x 100	65 x 100	85 x 142
Size of pulleys . . . . inches	44 x 10	44 x 10	48 x 12	48 x 12	50 x 12	50 x 12	50 x 14
Speed of pulleys . . . . R. P. M.	90	90	80	80	80	80	120

The "Toledo" 1500-Pound Board Lift Drop Hammer With Broad Anvil and T-Slot

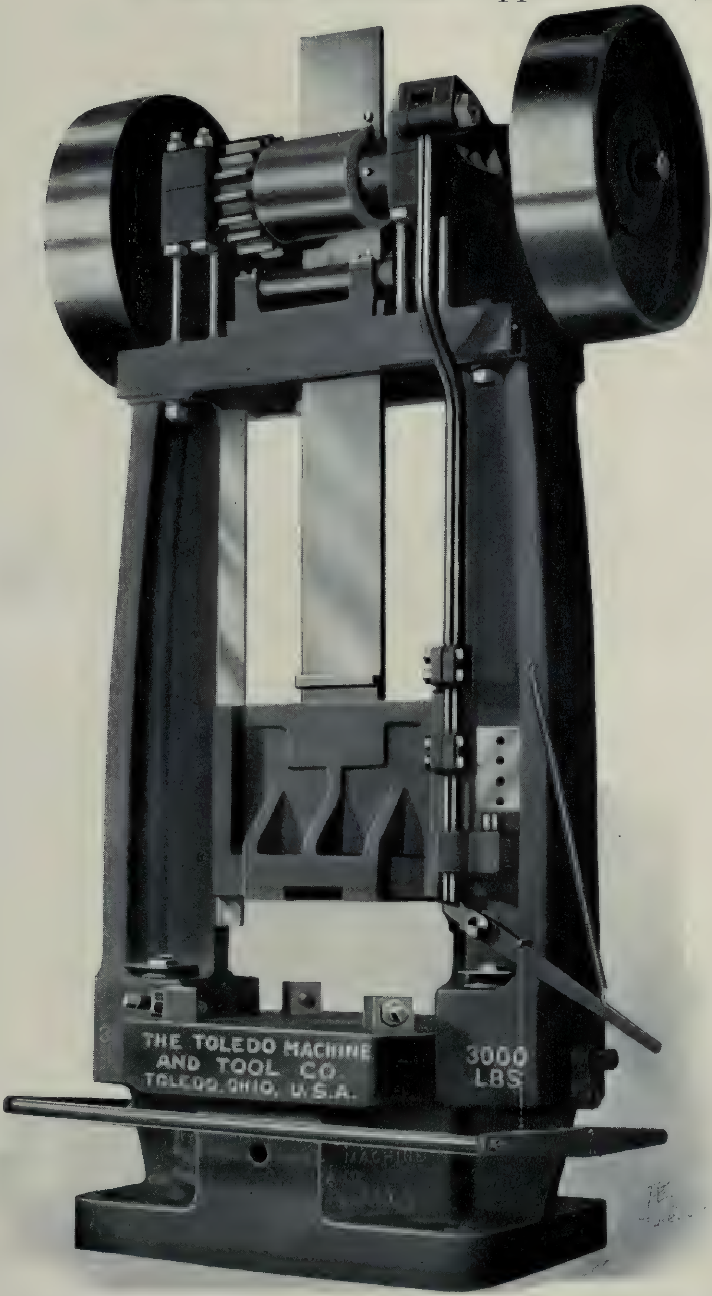


THIS illustration shows our 1500-lb. Hammer, of the low broad anvil type, particularly suited for sheet metal stamping in the manufacture of stamped steel wheels, embossed oven doors, large stampings for steel stoves and ranges, and similar work. Anvil is provided with T-slots as shown, or with poppets and poppet screws. Weight complete, about 28,000 lbs.

General description, pages 205-206. Dimensions, page 223. Code Word..........

The "Toledo" 3000-Pound Board Lift Drop Hammer With Broad Anvil and Poppets

(Patented)



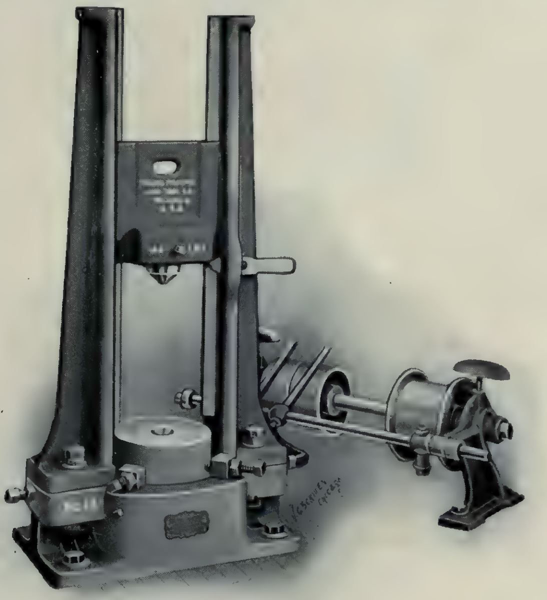
USED for embossing steel ceiling and panels, heavy stove plates, etc. Weight complete, about 50,000 lbs.

General description, pages 205-206. Dimensions, page 223. Code Word..........

The "TOLEDO" Rope Lift Drop Hammers

Number of Hammer	260	261	262	263	264	265
Page of Catalogue	228	229	230	231	....	232
Price without lift, with dovetail recess or T-slots	$.....	$.....	$.....	$.....	$.....	$.....
Price without lift, with 4 poppets	$.....	$.....	$.....	$.....	$.....	$.....
Price without lift, with 6 poppets	$.....	$.....	$.....	$.....	$.....	$.....
Code word without lift, with dovetail recess or T-slots	....	....	....	....	....	....
Code word without lift, with 4 poppets	....	....	....	....	....	....
Code word without lift, with 6 poppets	....	....	....	....	....	....
Weight of hammer head .... pounds	100	125	175	300	450	650
Weight of anvil, about .... pounds	900	1100	1300	2700	4000	5900
Weight complete, about .... pounds	1500	1900	2300	5000	6200	10000
Maximum fall of hammer .... inches	26	24	42	32	40	44
Area of top of anvil, F. to B., R. to L. .... inches	11 x 11	13 x 13	16 x 16	18 x 18	24 x 24	30 x 30
Diagonal distance between poppets .... inches	8	9½	12	14½	21	29
Distance between uprights at base .... inches	8½	10	12	15	19	24
Distance between uprights at ways .... inches	7	8	10	12	16	20
Distance top of anvil to bottom of ways .... inches	3	3½	4	4½	5	7
Height of anvil .... inches	30	30	30	30	32	26
Distance to top of uprights .... inches	66	66	90	78	92	88
Floor space of base, F. to B., R. to L. .... inches	14 x 14	16 x 16	16 x 20	20 x 20	24 x 24	30 x 30
Floor space over all, F. to B., R. to L. .... inches	16 x 20	18 x 24	18 x 28	22 x 32	26 x 40	32 x 48
ROPE LIFTS	Plain Flange Pulley				Geared Flange Pulley	
Price	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....
Diameter and face of lift pulley .... inches	6 x 5	6 x 5	8 x 6	10 x 8	10 x 8	12 x 10
Diameter and face of belt pulley .... inches	12 x 3	16 x 4	18 x 4½	22 x 5½	18 x 4	24 x 5
Speed of belt pulleys .... R. P. M.	100	75	75	60	200	175
CRANK LIFTS						
Price	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....
Diameter and face of belt pulley .... inches	12 x 2½	14 x 3	16 x 4	16 x 4½	18 x 5	18 x 6
Speed of belt pulleys .... R. P. M.	130	140	170	170	220	220

The "Toledo" No. 10-A Bench Drop Press With 40-Pound Hammer and Rope-Lifting Device



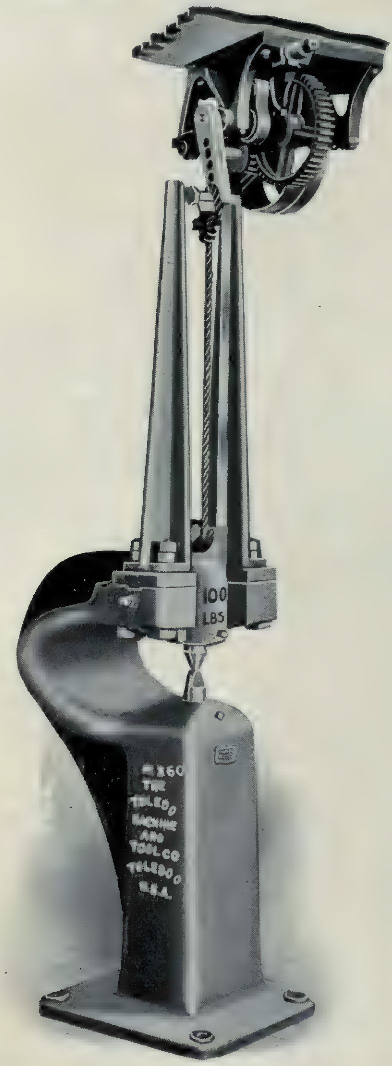
ROPE is coiled around the pulley a sufficient number of times only to obtain the desired friction in order to lift the Hammer with but little exertion placed upon the rope; the moment rope is released, the ram will drop.

Adapted to operating small forming, stamping and lettering dies on small stove trimmings, buttons, novelties, medals and a similar line of work.

The larger size is adapted to embossing and lettering heads for cans, pails and a kindred line of work.

DIMENSIONS OF BENCH DROPS	10-A	12-A
Weight of Hammer Head.........pounds	40	80
Code Word, without lift..........	......	......
Price, without lift..........	$.....	$.....
Weight of hammer, complete.........pounds	575	825
Maximum fall of hammer.........inches	27	27
Distance between uprights at ways.........inches	7	7
Distance between uprights at base.........inches	9	8½
Diagonal distance between poppets.........inches	9	8½
Distance F. to B. of bed.........inches	11	11
Height over all.........inches	42	44
Bench space required, R. to L., F. to B.........inches	20 x 11	20 x 11
ROPE LIFT		
Price	$.....	$.....
Code Word	......	......

The "Toledo" 15-Inch 100-Pound Gap Riveting Hammer No. 260, with Automatic Lift

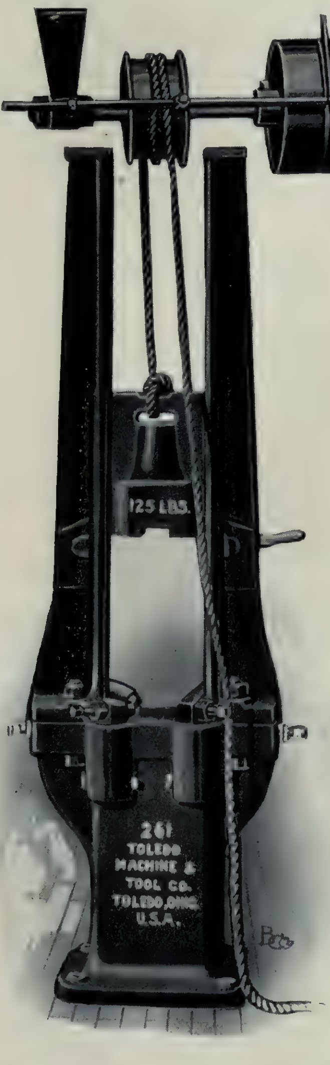


HAMMERS with open gap are very convenient for manufacturers of kitchen boiler heads, wrought iron fencing, agricultural implements, etc., and for a general line of ordinary stamping, embossing, bending and forming.

Price as shown, without lift..	$.....
Code word as shown, without lift....................................	......
Weight of hammer head..............................pounds	100
Weight complete, without lift, about...............pounds	2400
Depth of gap ....inches	15
Height of gap.......................................inches	8
Width between ways..................................inches	6½
Floor space of base, F. to B., R. to L..............inches	24 x 20

The "Toledo" No. 261 Rope Lift Drop Hammer, 125-Pound Head

(Old No. 25)

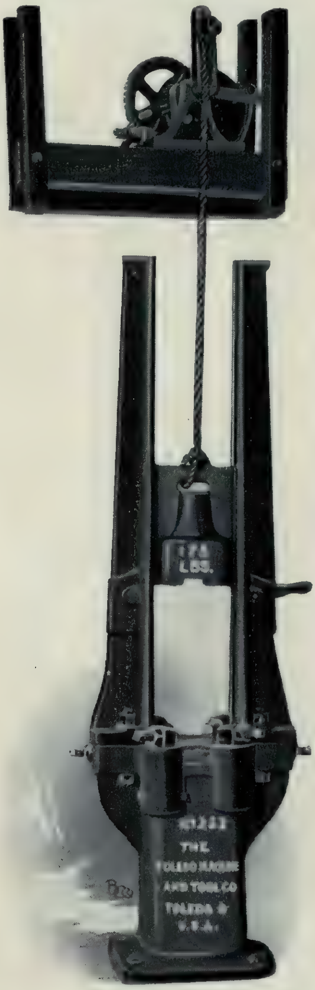


THIS size Hammer is specially adapted to forming and embossing medals, name plates, small parts of builders hardware, buttons, jewelry, novelties, metal trimmings, and to forming and straightening light work.

Poppets are forged from wrought iron and fitted with hardened tool steel set-screw with fine pitch; guides are provided with adjustment screws. Weight complete, about 1,900 lbs.

General description, page 205-206. Dimensions, page 226.
Code Word, exclusive of lifts, with four poppets............

The "Toledo" No. 262 Rope Lift Drop Hammer
175-Pound Head

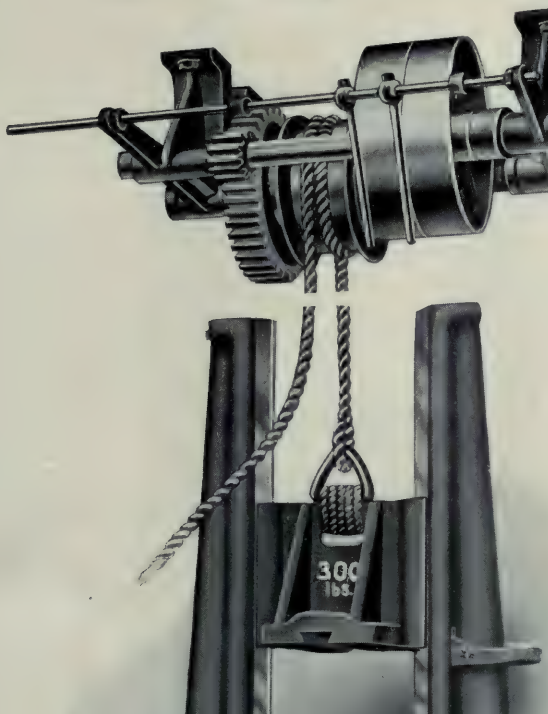


THIS Automatic Crank Lift may be supported in various ways, either from above, as shown, or with standards built up from the ground. Lift is operated by foot treadle, not shown in cut; and by a pressure on this treadle, lift is released, hammer falling instantly. Lift automatically raises the hammer and stops at the highest stroke, or, by keeping a pressure on the treadle, lift is kept in operation continuously. Adjustment is provided for a medium, long or short stroke.

Used for the same general class of work as hammers described on preceding pages, in the manufacture of sheet metal goods, hardware, cutlery, silverware, etc. Weight complete, about 2,900 lbs.

General description, pages 205-206. Dimensions, page 226
Code Word, with lift as shown...........
Code Word, exclusive of lift...............

The "Toledo" No. 263 Rope Lift Drop Hammers 300-Pound Head—(Old No. 26)

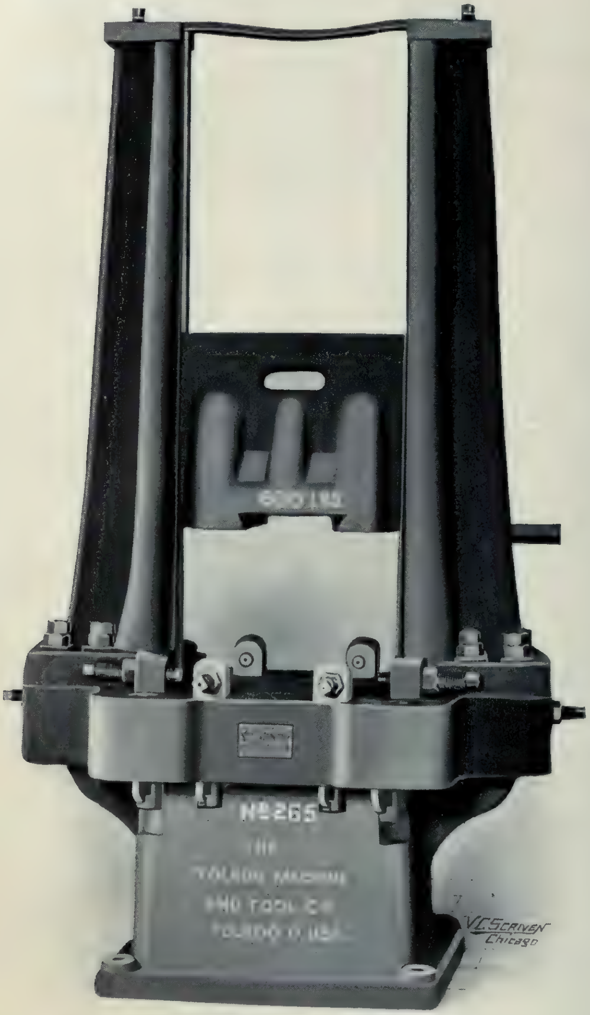


THIS Hammer is fitted with four or six poppets as desired, and is specially suited for forming and embossing on large or small stove trim-sewing machine parts, small shovels and a similar line of work.

sewing machine parts, small shovels and a similar line of work.

General description, pages 205-206. Dimensions, page 226

The "Toledo" No. 265 Rope Lift Drop Hammer
650-Pound Head
(Old No. 27)



THIS Hammer has an extra large bed, and is intended for dies covering a large surface. Used extensively by metal cornice and ceiling makers; for forming shovels, spades, tubing, bicycle, and bedstead work, etc., and for all kinds of metal stamping, straightening malleable castings, etc.

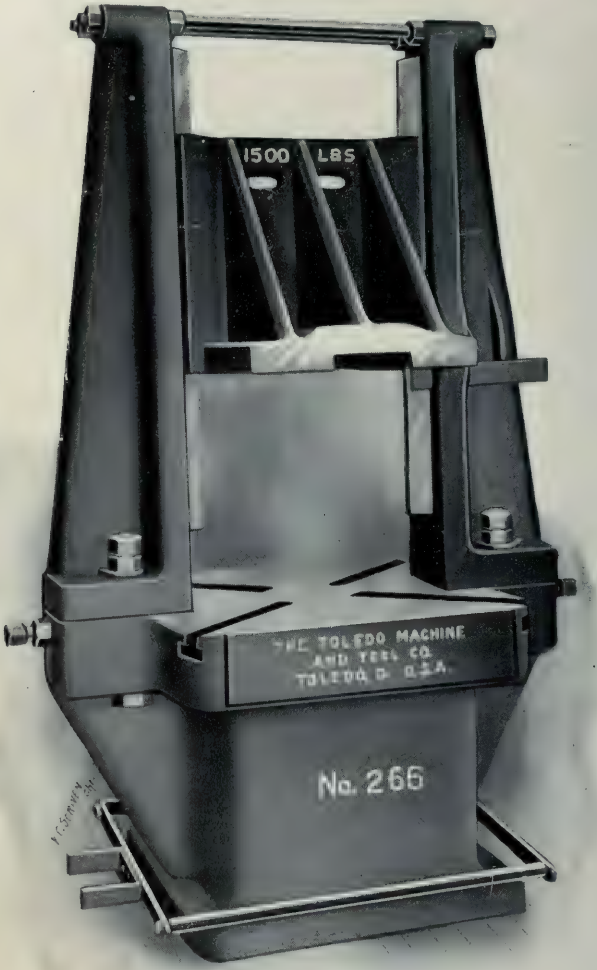
Fitted with four, six or eight poppets, as ordered. Furnished with geared flange pulley rope lift, geared water cooled rope lift, automatic crank lift, or roller friction board lift. Weight complete, about 10,000 lbs.

General description, pages 205-206. Dimensions, page 226
Code Word, without lift, eight poppets....................
Code Word, exclusive of lift, with four poppets...........

The "Toledo" Rope Lift Drop Hammers

Number of Hammer		265½	266	267½	269
Page of Catalogue			234	.....	235
Price without lift, with dovetail recess or T-slots		$......	$......	$......	$......
Price without lift, with 4 poppets		$......	$......	$......	$......
Price without lift, with 6 poppets		$......	$......	$......	$......
Code word without lift, with dovetail recess or T-slots		.....	.....	.....	.....
Code word without lift, with 4 poppets		.....	.....	.....	.....
Code word without lift, with 6 poppets		.....	.....	.....	.....
Weight of hammer head	pounds	1000	1500	2500	5000
Weight of anvil	pounds	9000	13500	22500	45000
Weight complete	pounds	13200	20000	31000	60000
Maximum fall of hammer	inches	49	38	34	38
Area of top of anvil, F. to B., R. to L.	inches	34 x 34	38 x 38	48 x 48	60 x 60
Diagonal distance between poppets	inches	32	36	46	61
Distance between uprights at base	inches	26	29	38	58
Distance between uprights at ways	inches	22	24	33	51
Distance top of anvil to bottom of ways	inches	8	8	8	8
Height of anvil	inches	32	32	30	28
Distance to top of uprights	inches	101	96	96	100
Floor space of base, F. to B., R. to L.	inches	36 x 36	36 x 36	44 x 44	48 x 48
Floor space over all, F. to B., R. to L.	inches	36 x 54	38 x 58	50 x 72	60 x 95
ROPE LIFTS		Geared Flange Pulley		Water-Cooled Pulley	
Price		$......	$......	$......	$......
Code word		.....	.....	.....	.....
Diameter and face of lift pulley	inches	14 x 12	16 x 16	20 x 20	24 x 24
Diameter and face of belt pulley	inches	30 x 6	30 x 6	24 x 5	30 x 6
Speed of belt pulley	R. P. M.	150	150	250	300
CRANK LIFTS					
Price		$......	$......	$......	$......
Code word		.....	.....	.....	.....
Diameter and face of belt pulley	inches	30 x 10	30 x 10	22 x 6	22 x 9
Speed of belt pulley	R. P. M.	160	160	475	485

The "Toledo" No. 266 Rope Lift Drop Hammer
1500-Pound Head
(Old No. 40)

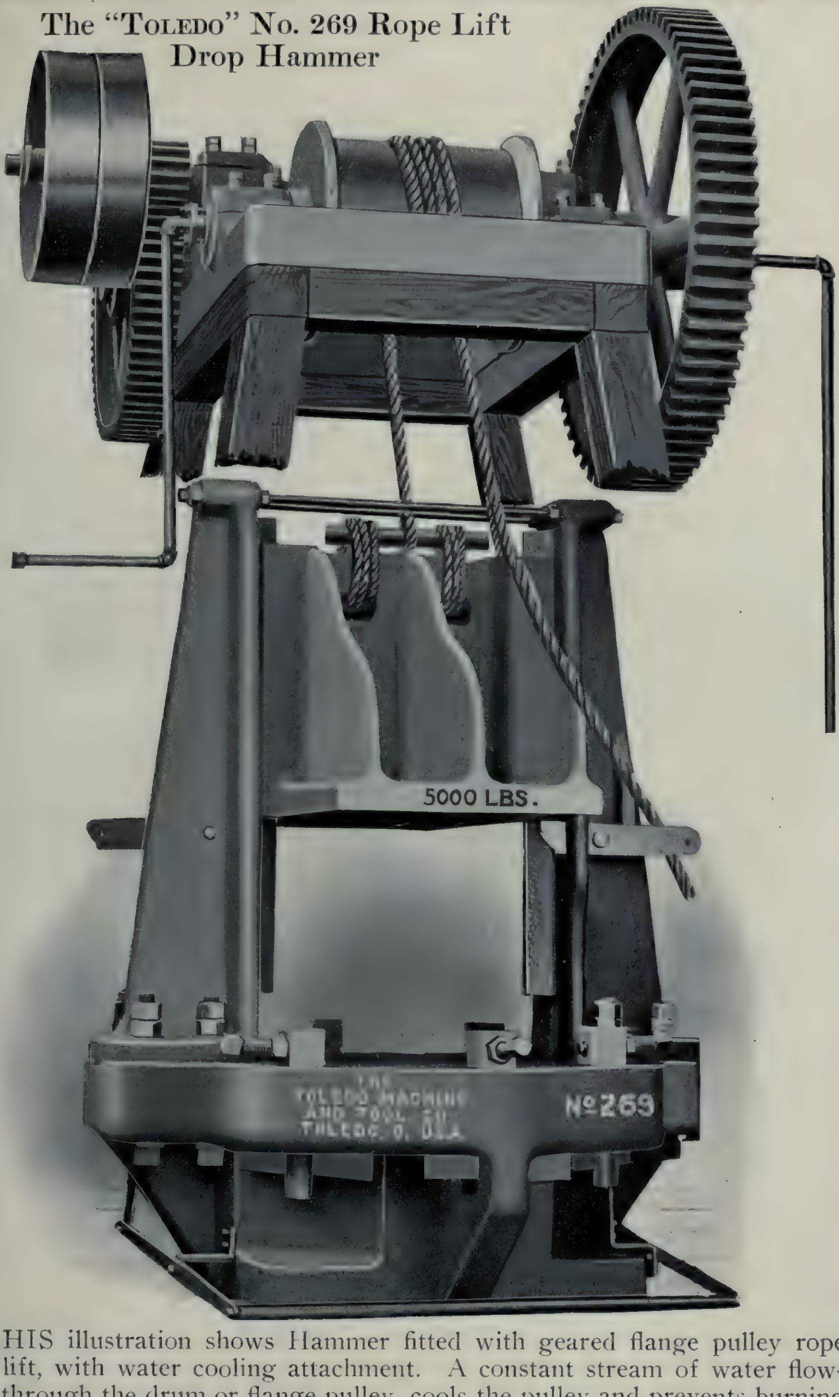


THIS Hammer can be built with *plain T-slotted anvil for receiving dies,* as shown, or with poppets, as desired. Hammer is specially suited for use in the manufacture of pressed ceiling and siding; for straightening malleable castings and stove parts, forming plow noses and other lines of work.

Fitted with water-cooled rope lift, automatic crank lift, or geared friction roll board lift. Weight complete about 20,000 lbs.

General description, pages 205-206. Dimensions, page 233.
Code Word, plain shoe, as shown, exclusive of lift............

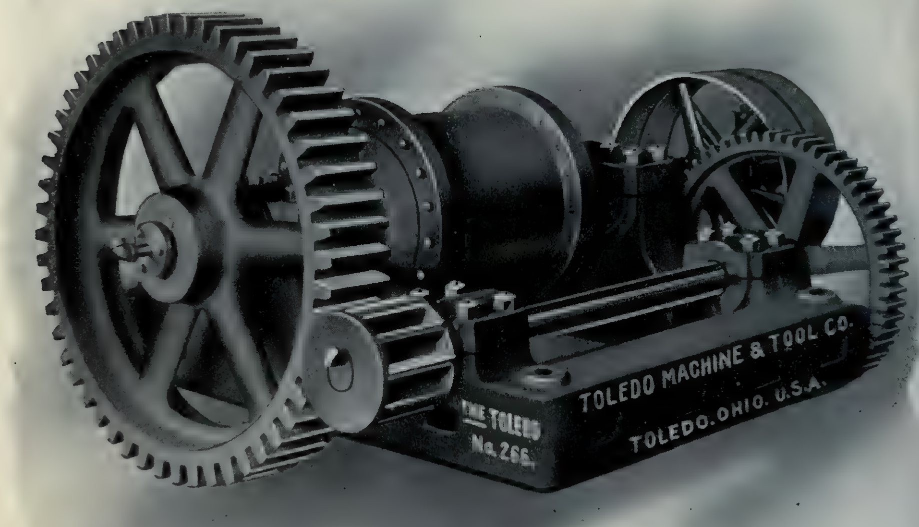
The "Toledo" No. 269 Rope Lift Drop Hammer



THIS illustration shows Hammer fitted with geared flange pulley rope lift, with water cooling attachment. A constant stream of water flowing through the drum or flange pulley, cools the pulley and prevents burning of rope. Used in the manufacture of metal ceilings, sidings, etc.

General description, pages 205-206. Dimensions, page 233. Code Word..........

The "Toledo" Geared Flange Pulley Rope Lift With Water Cooling Attachment



OUR Water Cooled Flange Pulley Rope Lifts are built in sizes to suit the several weights or sizes of our "260" series of drop hammers.

The "Toledo" Double Crank Presses

Nos. 90 to 99¾ and 202 to 212

THE illustrations on the following pages show our new heavy pattern of Straight Sided and Overhanging, Double Crank, Blanking, Forming and Embossing Presses. As will be noticed, these Presses embody a number of improvements and new features not to be found in any of the other makes of presses.

The general catalogue specifications given for these machines are standardized from the general requirements of manufacturers of sheet metal goods requiring Presses of this size and type. We have patterns for, and build, over 125 different sizes of these Presses, ranging in weight from 4,000 to 360,000 pounds each, and adapted to every variety of sheet metal and drop forging work. We are continually adding new sizes, and recently built several of these Presses with a distance of 169 inches between the uprights. All of these Presses can be furnished in any required width between the housings, and with any bed area, bed opening, stroke or die space required for special work.

The "Toledo" Double Crank Presses are looked upon as the standard by many of the largest manufacturers of automobile bodies, hoods and other automobile parts, steel stoves and ranges, steel car parts, steel signs, metal furniture, metallic caskets and burial vaults, metal shingles and steel ceilings, armature discs and segments and other electrical parts, wash boilers, wash tubs and general pieced tinware, agricultural implements, miners' tools, and general sheet metal working and drop forging work.

The "Toledo" Sliding Block Clutch, with gravity controlling and releasing mechanism, is regularly furnished on all the geared Presses, and the "Toledo" Automatic Pin Clutch on the plain Presses of this type.

The "Toledo" Patented Friction Clutch is recommended for long stroke work on the medium and smaller sizes and on all of the larger sizes of double crank Presses, for greater convenience in setting dies and increased safety in operation.

For Clutch description see pages 9 to 14.

The Positive Automatic Safety Device, described on page 15, can be fitted to all our clutches; this device automatically prevents the Press making a second stroke if the operator neglects to remove his foot from the treadle; this checks in a large degree, liability to accidents, yet in no way reduces the output of the Press.

The slide construction of all our Double Crank Presses is of an improved design, with extra long ways and gibs, (see page 14, illustration No. 2) and adapted to the heaviest requirements of long stroke work. The bevel gear adjustment for slide, by means of which both connection screws are adjusted simultaneously, allows the slide to be raised or lowered at will, and insures a parallel height between the bed and slide at all points.

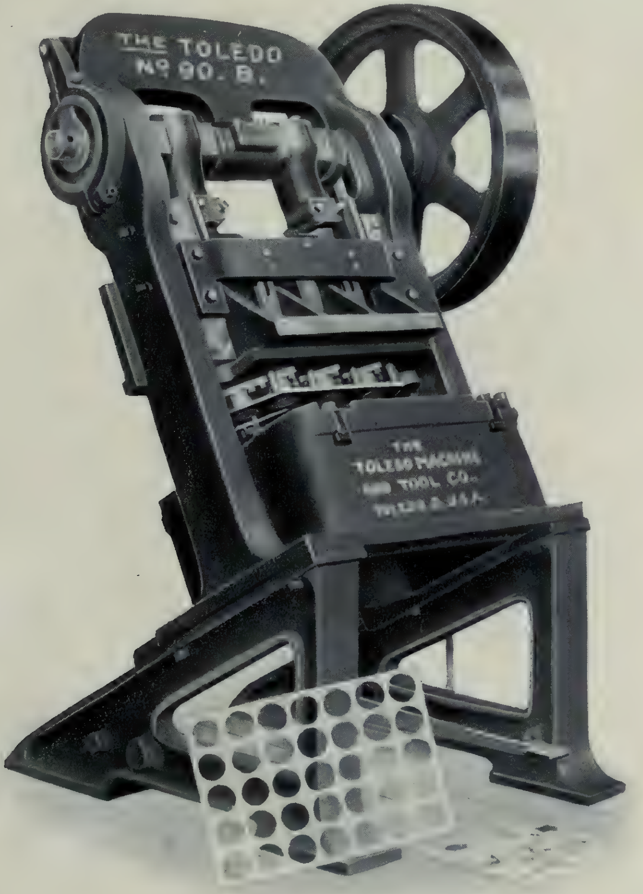
The pitman or connection is heavily reinforced, and the locking or clamping device on same (shown on page 14, illustration No. 2) has proven the strongest and most effective in use; it gives a practically perfect bearing on the threaded portion of both pitman and screw. The cap "B" being independent of the pitman, all the pressure of the locking screw is brought to bear on the thread, which makes a positive lock, yet is easily adjusted when released.

The "Toledo" Double Crank Blanking, Forming and Embossing Presses

Number of Press Page of Catalogue	90-A	90-B 239	90-C 240	90-D 241	90-E	91-A	91-B 242	91-C 243	91-D
PLAIN PRESS Code Word									
Price including bolster plate	$....	$....	$....	$....	$....	$....	$....	$....	$....
Price extra for plain, solid bolster plate	$....	$....	$....	$....	$....	$....	$....	$....	$....
Weight about ... pounds	4000	4150	4350	4500	5150	5500	5800	6200	6700
*Area of slide flange, F. to B., R. to L. ... inches	18 x 17½	18 x 21½	18 x 25½	18 x 29½	18 x 35½	20 x 21	20 x 25	20 x 29	20 x 35
*Area of bed, F. to B., R. to L. ... inches	24 x 24	24 x 28	24 x 32	24 x 36	24 x 42	27 x 28	27 x 32	27 x 36	27 x 42
*Opening in bed, F. to B., R. to L. ... inches	16 x 19	16 x 23	16 x 27	16 x 31	16 x 37	18 x 22	18 x 26	18 x 30	18 x 36
Width between housings ... inches	24	28	32	36	42	28	32	36	42
Distance between gibs ... inches	18	22	26	30	36	21½	25½	29½	35½
*Standard stroke of slide ... inches	1¾	1¾	1¾	1¾	1¾	2	2	2	2
Maximum stroke of slide ... inches	4	4	4	4	4	4	4	4	4
Adjustment of slide ... inches	2	2	2	2	2	2	2	2	2
*Standard distance bed to slide, stroke and adj. up inches	10	10	10	10	10	11	11	11	11
Thickness of bolster plate ... inches	2	2	2	2	2	2	2	2	2
Diameter and face of flywheel ... inches	34 x 5½	34 x 5½	34 x 5½	34 x 5½	34 x 5½	36 x 5½	36 x 5½	36 x 5½	36 x 5½
Weight of flywheel ... pounds	650	650	650	650	650	775	775	775	775
Speed of flywheel ... R. P. M.	100	100	100	100	100	90	90	90	90
Distance floor to center of shaft ... inches	68	68	68	68	68	72	72	72	72
Floor space over all, F. to B., R. to L. ... inches	38 x 52	38 x 56	38 x 60	38 x 64	38 x 70	44 x 58	44 x 62	44 x 66	44 x 72
Floor space of base, F. to B., R. to L. ... inches	38 x 32	38 x 36	38 x 40	38 x 44	38 x 50	44 x 38	44 x 42	44 x 46	44 x 52
GEARED PRESS Code Word									
Price	$....	$....	$....	$....	$....	$....	$....	$....	$....
Weight, about ... pounds	4550	4700	4950	5300	5750	6200	6500	6900	7400
Proportion of gearing	6:1	6:1	6:1	6:1	6:1	6½:1	6½:1	6½:1	6½:1
Diameter of gear ... inches	32	32	32	32	32	35	35	35	35
Size of balance wheel ... inches	30 x 5	30 x 5	30 x 5	30 x 5	30 x 5	34 x 5½	34 x 5½	34 x 5½	34 x 5½
Weight of balance wheel ... pounds	400	400	400	400	400	600	600	600	600
Size of belt wheel ... inches	18 x 4	18 x 4	18 x 4	18 x 4	18 x 4	20 x 5	20 x 5	20 x 5	20 x 5
Speed of belt wheel ... R. P. M.	300	300	300	300	300	300	300	300	300
Strokes of slide ... per minute	50	50	50	50	50	45	45	45	45
Floor space over all, F. to B., R. to L. ... inches	43 x 65	43 x 70	43 x 74	43 x 78	43 x 86	49 x 74	49 x 78	49 x 82	49 x 88

*Can be changed. For special features, see page .....

The "Toledo" No. 90-B, 28-inch Double Crank Press



THE set of Multiple or Gang Combination Cutting and Forming Dies shown in this illustration will cut and form, at each stroke of the Press, four tops and bottoms for fruit and condensed milk cans.

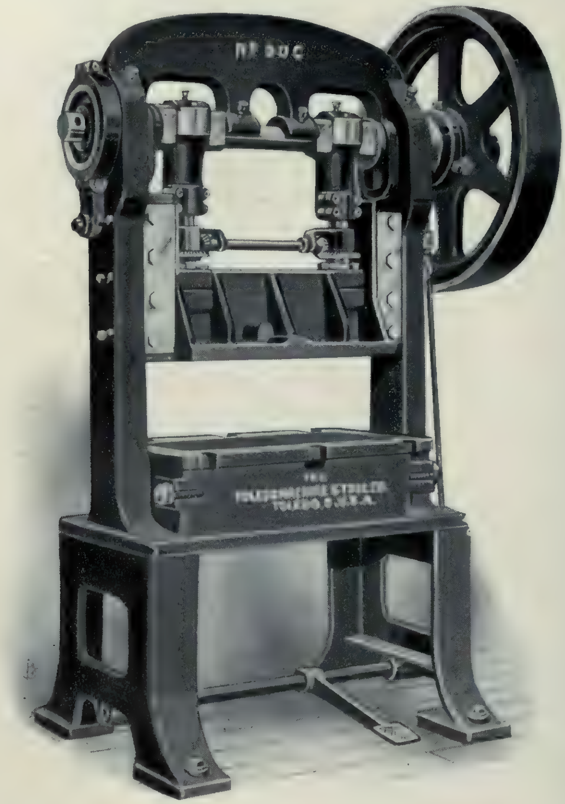
The inclined position allows the finished work to slide from the die by gravity.

Slide is fitted with positive automatic stripping device.

The long slide bearings of special construction make Press particularly efficient for operating gang dies for producing tops and bottoms of packing cans of all kinds, and a similar line of work. Total weight about 4,150 lbs.

General description, page 237. Dimensions, page 238. Code Word..............

The "Toledo" No. 90-C, 32-inch Double Crank Press With Removable Front



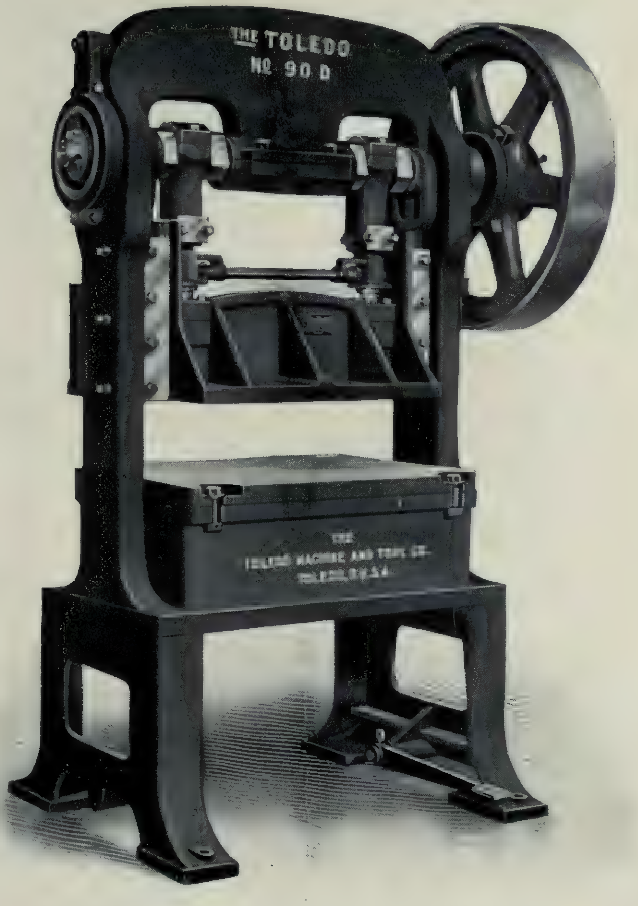
THE front of this Press is made removable so that special plates and bolsters can be used for tools or dies for clinching, swaging, deep forming and other work requiring extreme height or special forms or shapes, such as vapor stove ovens, steel boxes, etc.

Fitted with a sunken bolster, Press can be used for wiring flaring pails, small tubs and other light gauge sheet metal articles, and, with the usual flat bolster plate in connection with removable front, and the use of horn and force, it is available for nearly every operation required in the production of pieced ware.

Built with a solid front, Press is adapted to operating gang or group dies for cutting complete, at one stroke, tops and bottoms of fruit, vegetable, meat cans, etc., cutting a whole sheet of tin at one stroke of Press. Total weight about 4,350 lbs.

General description, page 237. Dimensions, page 238.
Code Word, with solid front............
Code Word..............................

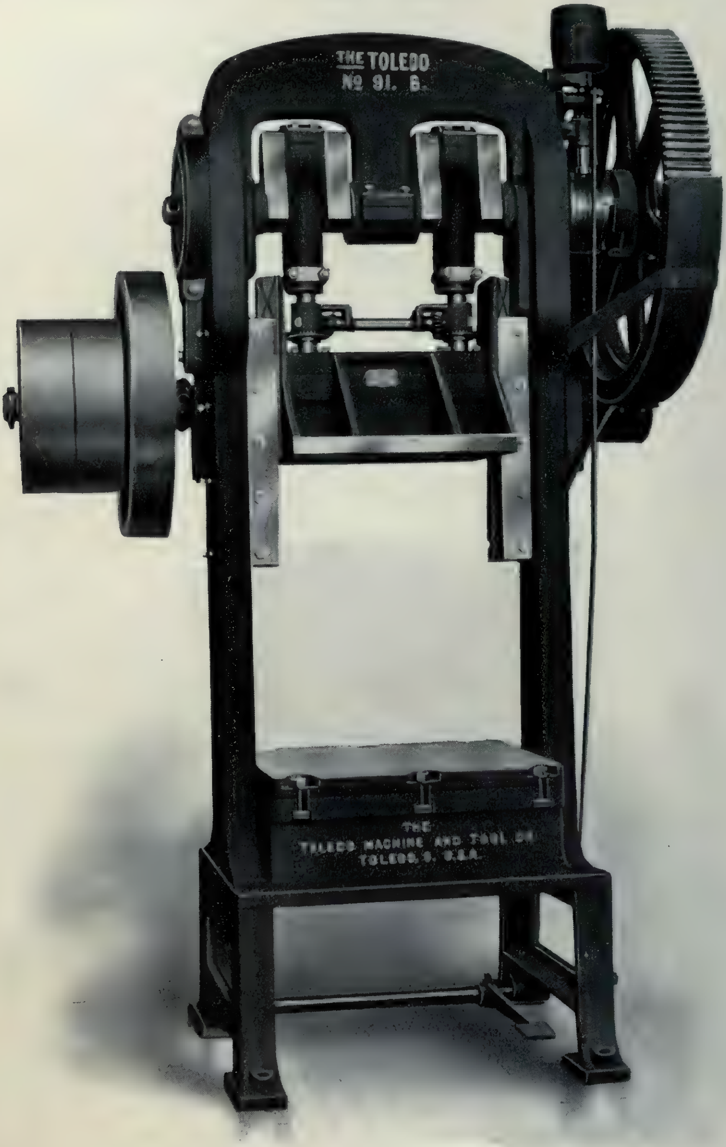
The "Toledo" No. 90-D, 36-inch Double Crank Press



THIS illustration shows one of our smaller size Double Crank Presses, adapted for operating large blanking dies used in the manufacture of furnace pipe, gas ovens, pieced tinware and similar work where large blanking dies for light tin or other sheet metal are required. Total weight about 4,500 lbs.

General description, page 237. Dimensions, page 238. Code Word............

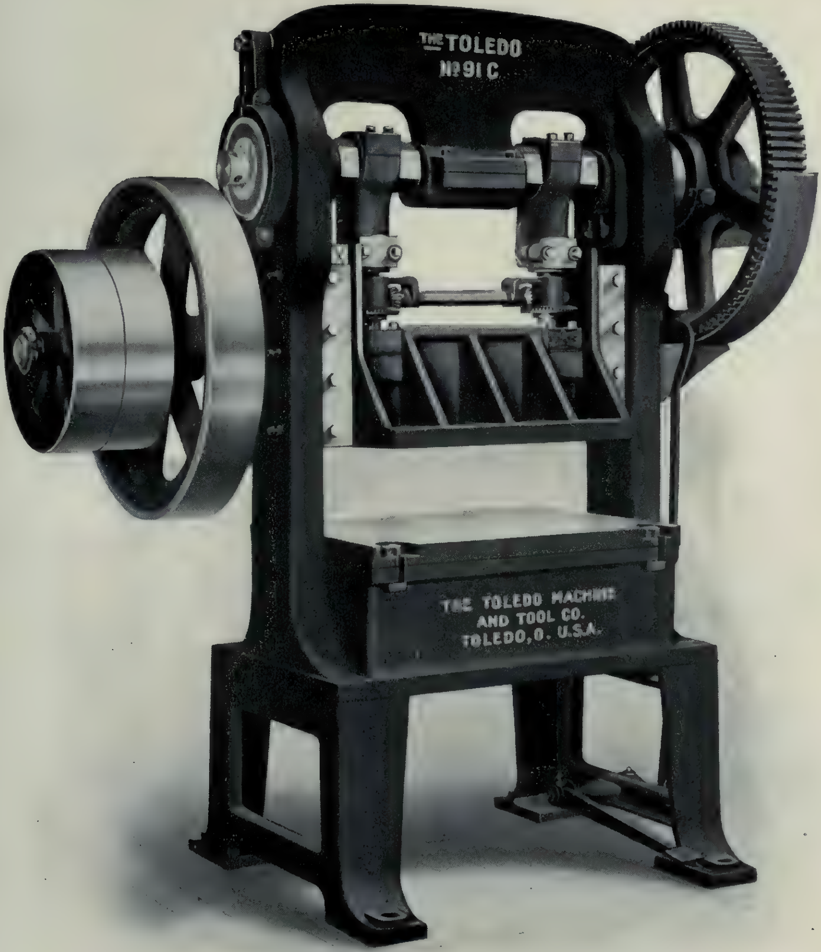
The "Toledo" No. 91-B, 32-inch High Pattern Double Crank Press, Geared (Patented)



THIS illustration shows our No. 91 High Pattern Press, with stroke or slide motion of 14 inches, and with correspondingly increased distance from bed to slide, to provide for dies of special high pattern for forming or curling the top wired edge of bottle cases, boxes, pails, small tubs and for flanging, shouldering or forming on a wide range of similar deep work. Total weight about 6,500 lbs.

General description, page 237. Dimensions, page 238. Code Word............

The "Toledo" No. 91-C, 36-inch Double Crank Press, Geared

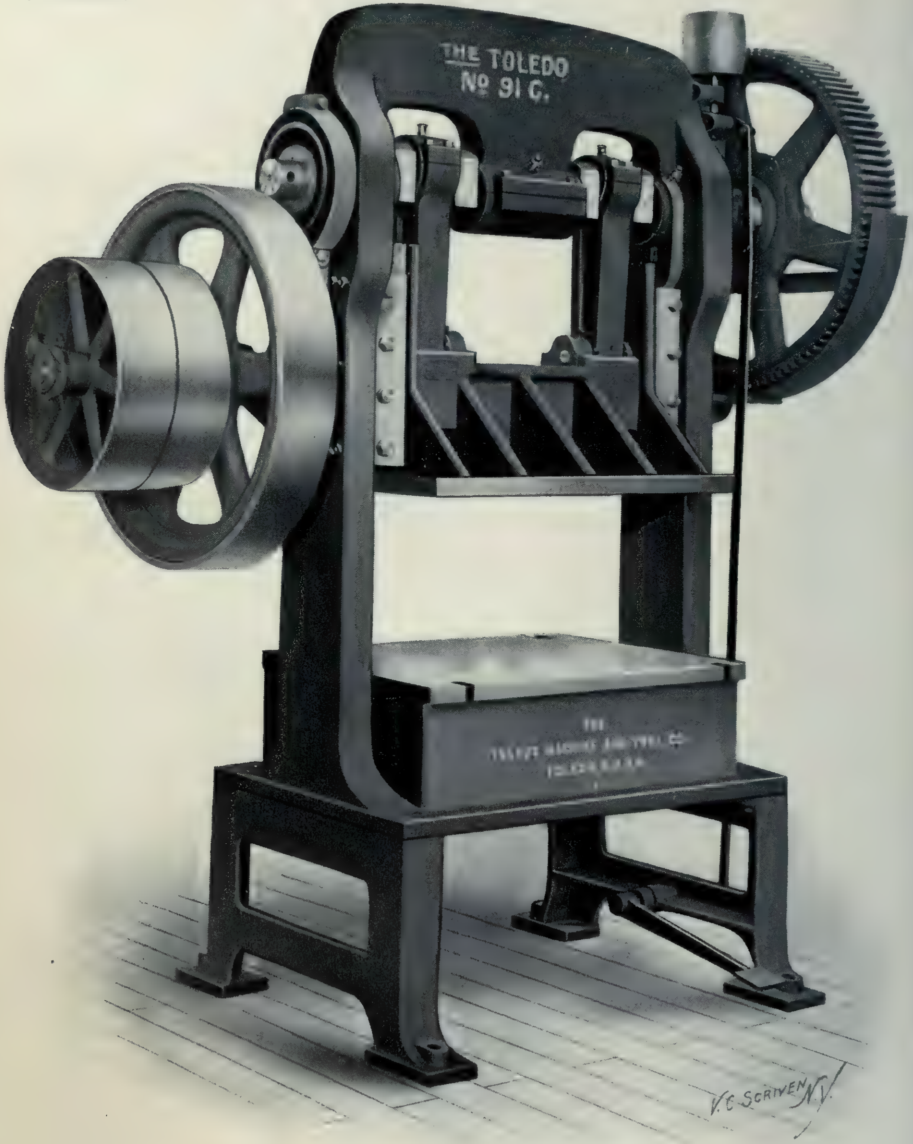


THIS Press has capacity for forming and embossing light sheets used in the manufacture of metal cases or boxes. It is also particularly adapted for operating large blanking and multiple gang or punching dies for light sheet metal work. Total weight about 6,900 lbs.

General description, page 237. Dimensions, page 238. Code Word............

The "Toledo" No. 91-C, 36-inch Double Crank Press, Geared

(Patented)


THE TOLEDO
Nº 91 C.
V.C. SCRIVEN N.Y.

THIS 36-inch No. 91-C Double Crank Press, high pattern, with solid bed and solid pitman or connection, is adapted to trimming drop forgings, also blanking and perforating on a medium heavy class of work. Can be furnished with solid bed as shown, or with opening in bed to suit special work. Also furnished either with adjustable or solid connections for slide Total weight about 6,900 lbs.

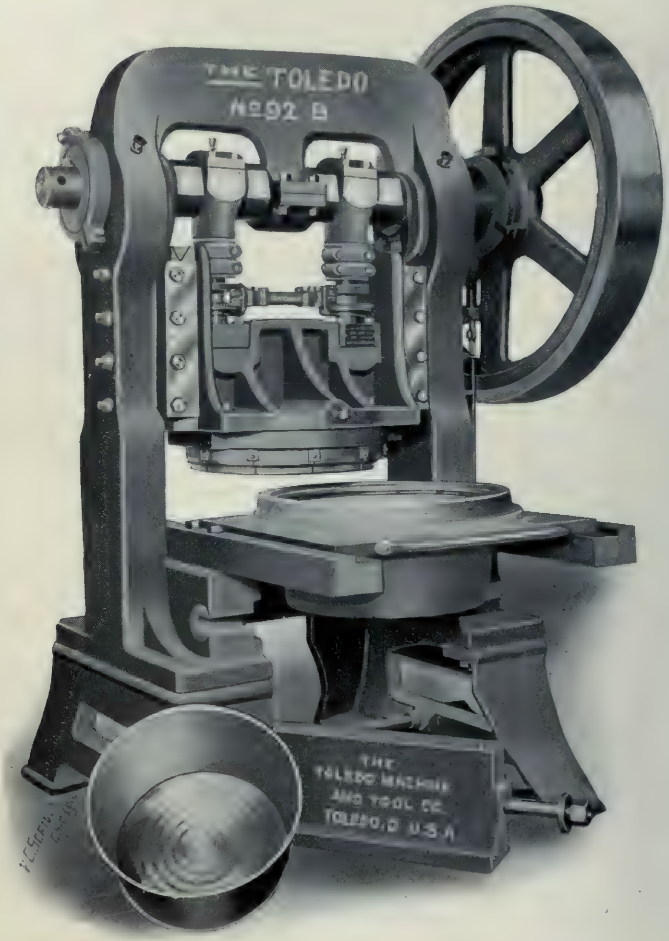
General description, page 237. Dimensions, page 238. Code Word............

The "Toledo" Double Crank Blanking, Forming and Embossing Presses

Number of Machine Page of Catalogue	92-A	92-B 248	92-C	92-D	92½-A	92½-B	92½-C	92½-D	92½-E	92½-F ....
PLAIN PRESS Code Word										
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	7600	8100	8900	9700	10900	11800	12700	13800	14900	15300
*Area of slide flange, F to B., R. to L. ... inches	22 x 24	22 x 29	32 x 34	22 x 40	23 x 28	23 x 34	23 x 40	23 x 46	23 x 52	23 x 58
*Area of bed, F. to B., R. to L. ... inches	30 x 32	30 x 36	22 x 42	30 x 48	32 x 36	32 x 42	32 x 48	32 x 54	32x 60	32 x 66
*Opening in bed, F. to B., R. to L. ... inches	20 x 26	20 x 30	20 x 36	20 x 42	21 x 29	21 x 35	21 x 41	21 x 47	21 x 53	21 x 59
Width between housings ... inches	32	36	42	48	36	42	48	54	60	65
Distance between gibs ... inches	25	29	35	41	28	34	40	46	52	58
*Standard stroke of slide ... inches	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½
Maximum stroke of slide ... inches	5	5	5	5	5	5	5	5	5	5
Adjustment of slide ... inches	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½
*Standard distance bed to slide, stroke and adjustment up ... inches	12	12	12	12	13	13	13	13	13	13
Thickness of bolster plate ... inches	2¼	2¼	2¼	2¼	2½	2½	2½	2½	2½	2½
Diameter and face of flywheel ... inches	42x6½	42x6½	42x6½	42x6½	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7
Weight of flywheel ... pounds	1050	1050	1050	1050	1350	1350	1350	1350	1350	1350
Speed of flywheel ... R. P. M.	80	80	80	80	80	80	80	80	80	80
Distance floor to center of shaft ... inches	74	74	74	74	77	77	77	77	77	77
Floor space over all, F. to B., R. to L. ... inches	46 x 63	46 x 67	46 x 73	46 x 79	50 x 73	50 x 79	50 x 85	50 x 91	50 x 97	50x103
Floor space of base, F. to B., R. to L. ... inches	46 x 42	46 x 46	46 x 52	46 x 58	49 x 48	49 x 54	49 x 60	49 x 66	49 x 72	49 x 78
GEARED PRESS Code Word										
Price	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	8900	9400	10200	11000	12500	13400	14400	15500	16600	18000
Proportion of gearing	6½:1	6½:1	6½:1	6½:1	7:1	7:1	7:1	7:1	7:1	7:1
Diameter of gear ... inches	42	42	42	42	54	54	54	54	54	54
Size of balance wheel ... inches	38 x 6	38 x 6	38 x 6	38 x 6	42x6½	42x6½	42x6½	42x6½	42x6½	42x6½
Weight of balance wheel ... pounds	800	800	800	800	1000	1000	1000	1000	1000	1000
Size of belt wheel ... inches	24 x 5	24 x 5	24 x 5	24 x 5	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6
Speed of belt wheel ... R. P. M.	300	300	300	300	275	275	275	275	275	275
Strokes of slide per minute	45	45	45	45	40	40	40	40	40	40
Floor space over all, F. to B., R. to L. ... inches	56 x 88	56 x 92	56 x 98	56x104	61 x 96	61x102	61x108	61x114	61x120	61x126

*Can be changed. For special features, see page 237.

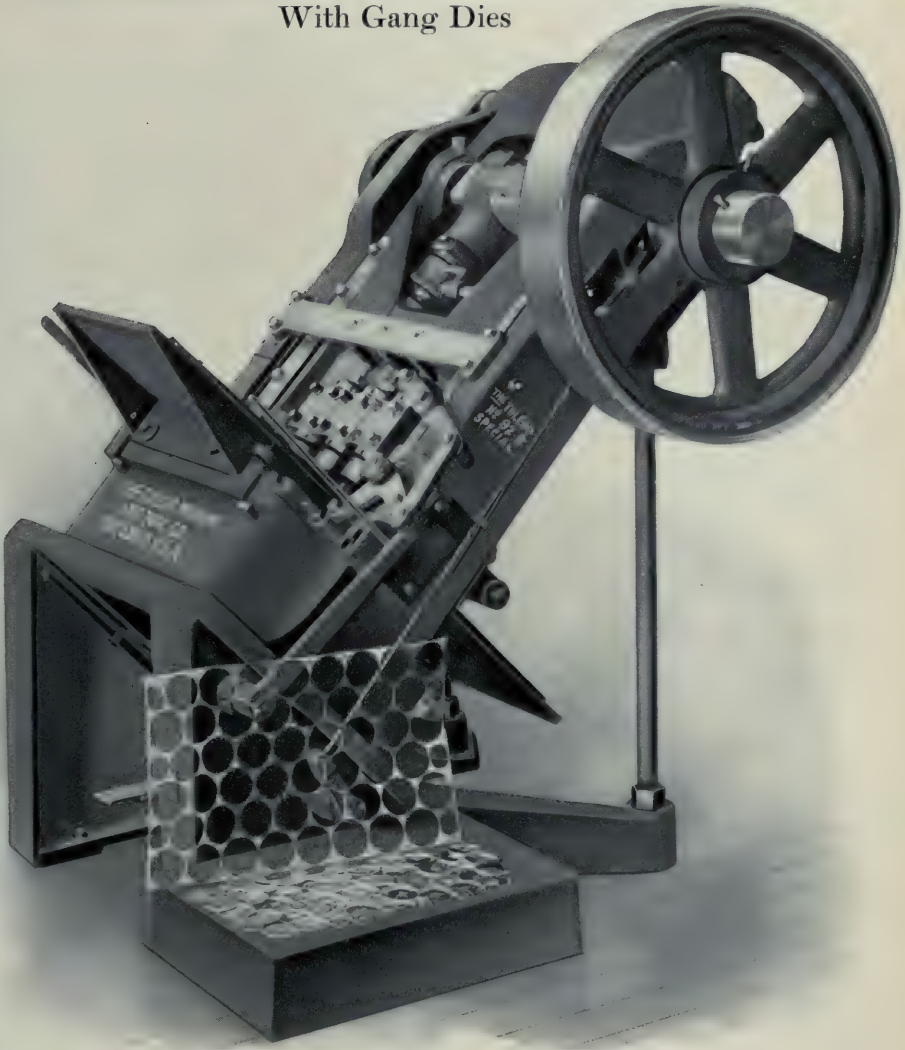
The "Toledo" No. 92-B, 36-inch Double Crank Press With Removable Front



A 36-inch Press, with Roller Bearing Sliding Frame, with wiring dies for wash tubs, is shown in this illustration. This Press is adapted to operating wiring dies, as shown, and blanking and combination cutting and forming dies for cutting out body blanks and bottoms for wash tubs, etc., thus performing the work of a blanking, combination cutting and drawing, and long stroke wiring press. Total weight about 8,100 lbs.

General description, page 237. Dimensions, page 245
Code Word, with standard bed...............
Code Word as shown, without dies...........

The "Toledo" No. 92-B, 36-inch Double Crank Press With Gang Dies



THE illustration shows our new special gang Press having capacity for producing can tops, caps or bottoms, bottle caps and other similar work at the rate of 180,000 to 200,000 pieces per day of ten hours.

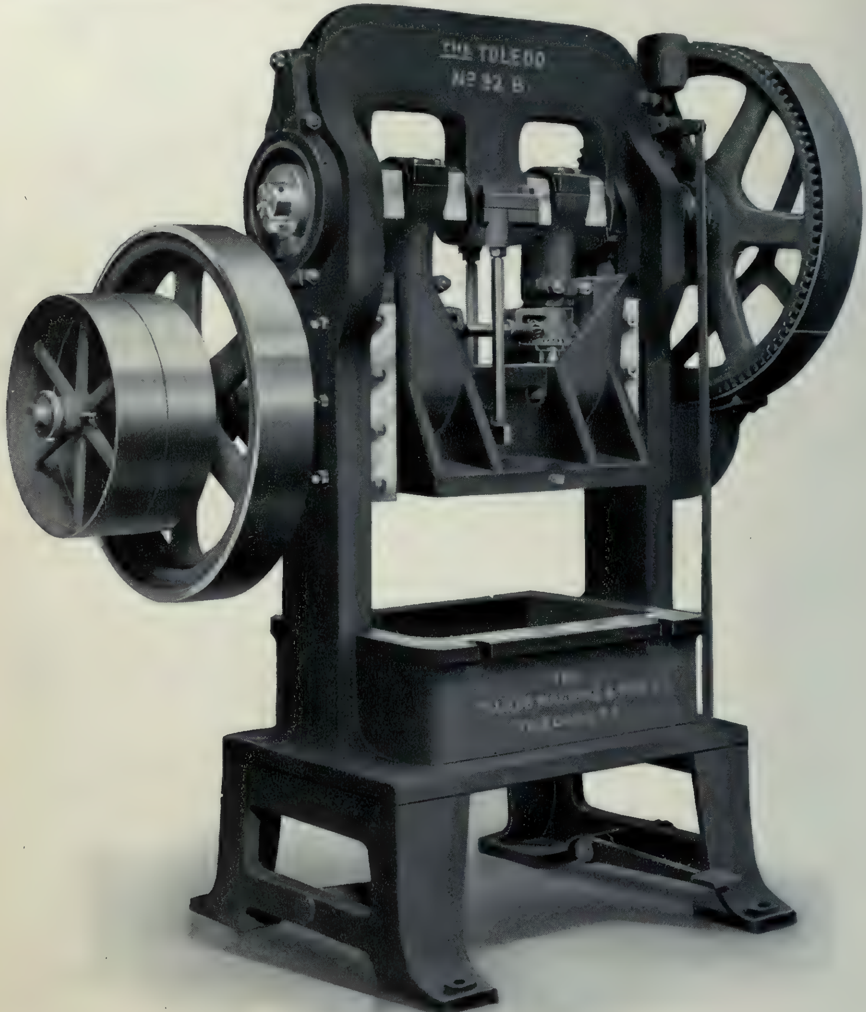
The six set of upper dies or punches are independently inserted in the slide with an independent adjustment to each. The lower dies are also fitted with similar independent control.

This construction eliminates the costly repairs and many other inconveniences heretofore found in gang presses.

The economy in operation and the saving in the cost of producing the work is a factor well worth considering. Total weight about 8,100 lbs.

General description, page 237. Dimensions, page 245. Code Word............

The "Toledo" No. 92-B, 36-inch Double Crank Press, Geared



THIS Press is very popular with manufacturers of pieced tinware, gas ovens, steel boxes and similar light gauge metal work, being adapted to a wide range of operations on work of this character. Can be furnished with either solid or removable front piece to bed. With the front piece removed as per illustration on page 246, Press can be used for horning and wiring; and with the front piece in position, Press will operate equally as satisfactorily as with a solid cast bed in operating blanking, perforating, forming or combination dies.

The illustration shows Press fitted with an improved type of knockout in slide, operated by rods extending down from arch of Press.

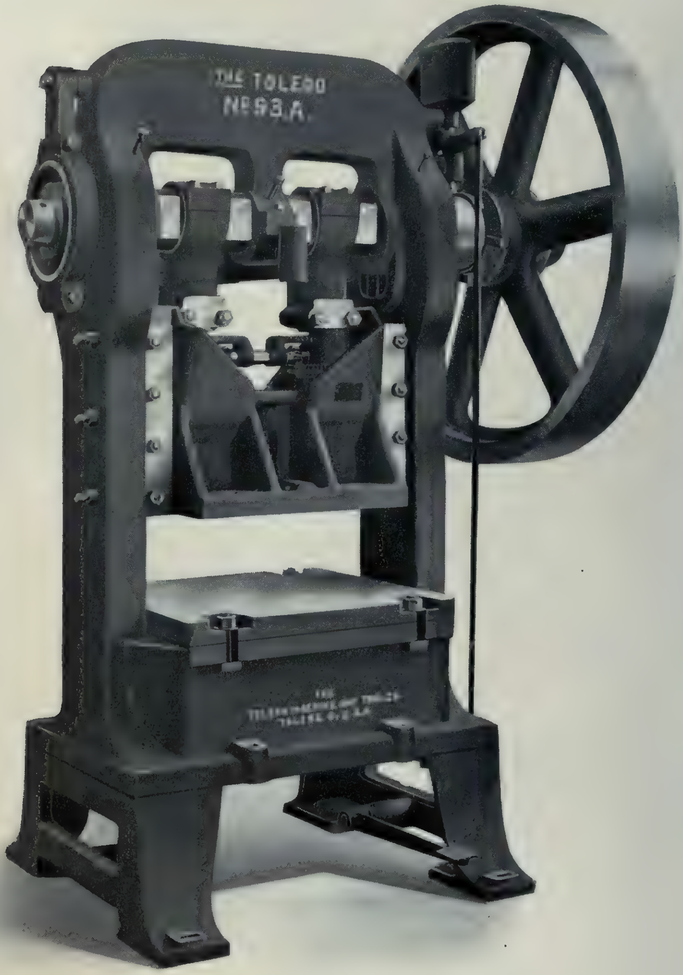
General description, page 237. Dimensions, page 245

The "Toledo" Double Crank Blanking, Forming and Embossing Presses

Number of Machine Page of Catalogue	93-A 250	93-B 253	93-C 255	93-D	93-E	93-F ....
PLAIN PRESS Code Word						
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	12400	13300	14200	15100	16000	17000
*Area of slide flange, F. to B., R. to L. ... inches	24 x 28	24 x 34	24 x 40	24 x 46	24 x 52	24 x 58
*Area of bed, F. to B., R. to L. ... inches	33 x 36	33 x 42	33 x 48	33 x 54	33 x 60	33 x 66
*Opening in bed, F. to B., R. to L. ... inches	22 x 28	22 x 34	22 x 40	22 x 46	22 x 52	22 x 58
Width between housings ... inches	36	42	48	54	60	66
Distance between gibs ... inches	28	34	40	46	52	58
*Standard stroke of slide ... inches	2½	2½	2½	2½	2½	2½
Maximum stroke of slide ... inches	5	5	5	5	5	5
Adjustment of slide ... inches	2½	2½	2½	2½	2½	2½
*Standard distance bed to slide, stroke and adjustment up ... inches	13	13	13	13	13	13
Thickness of bolster plate ... inches	2½	2½	2½	2½	2½	2½
Diameter and face of flywheel ... inches	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7
Weight of flywheel ... pounds	1350	1350	1350	1350	1350	1350
Speed of flywheel ... R. P. M.	80	80	80	80	80	80
Distance floor to center of shaft ... inches	81	81	81	81	81	81
Floor space over all, F. to B., R. to L. ... inches	50 x 76	50 x 82	50 x 88	50 x 94	50 x 100	50 x 105
Floor space of base, F. to B., R. to L. ... inches	49 x 48	49 x 54	49 x 60	49 x 66	49x 72	49 x 78
GEARED PRESS Code Word						
Price	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	14000	14900	15900	17000	18100	19600
Proportion of gearing	7:1	7:1	7:1	7:1	7:1	7:1
Diameter of gear ... inches	54	54	54	54	54	54
Size of balance wheel ... inches	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½
Weight of balance wheel ... pounds	1000	1000	1000	1000	1000	1000
Size of belt wheel ... inches	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6
Speed of belt wheel ... R. P. M.	275	275	275	275	275	275
Strokes of slide per minute	40	40	40	40	40	40
Floor space over all, F. to B., R. to L. ... inches	62 x 102	62 x 108	62 x 114	62 x 120	62 x 126	62 x 132

*Can be changed. For special features, see page 237.

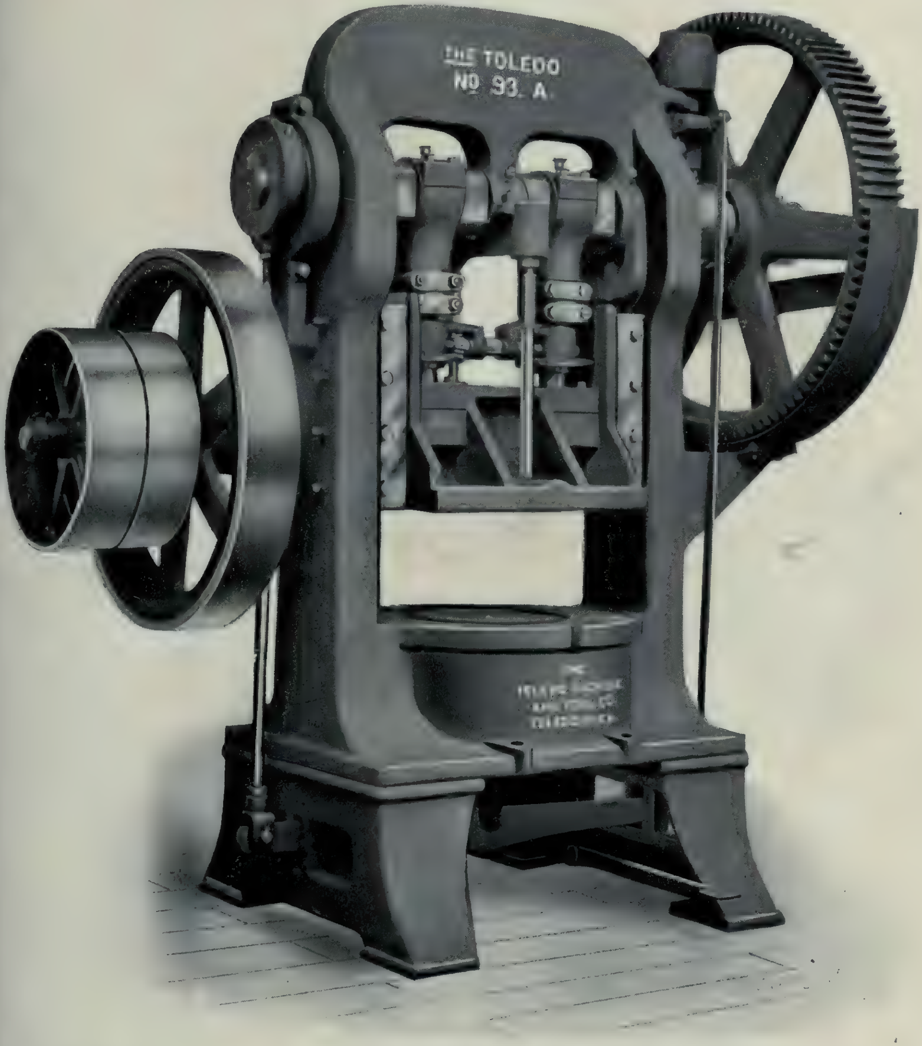
The "Toledo" No. 93-A, 36-inch Double Crank Press



CONSTRUCTION of this Press is similar to that of No. 93-A Geared, shown and described on following page. Gross weight approximately 12,400 lbs. Adapted to heavy embossing, forming and blanking work on steel shingles, metal roofing, etc.

General description, page 237. Dimensions, page 249. Code Word............

The "Toledo" No. 93-A, 36-inch Double Crank Press, Geared With Round Bed

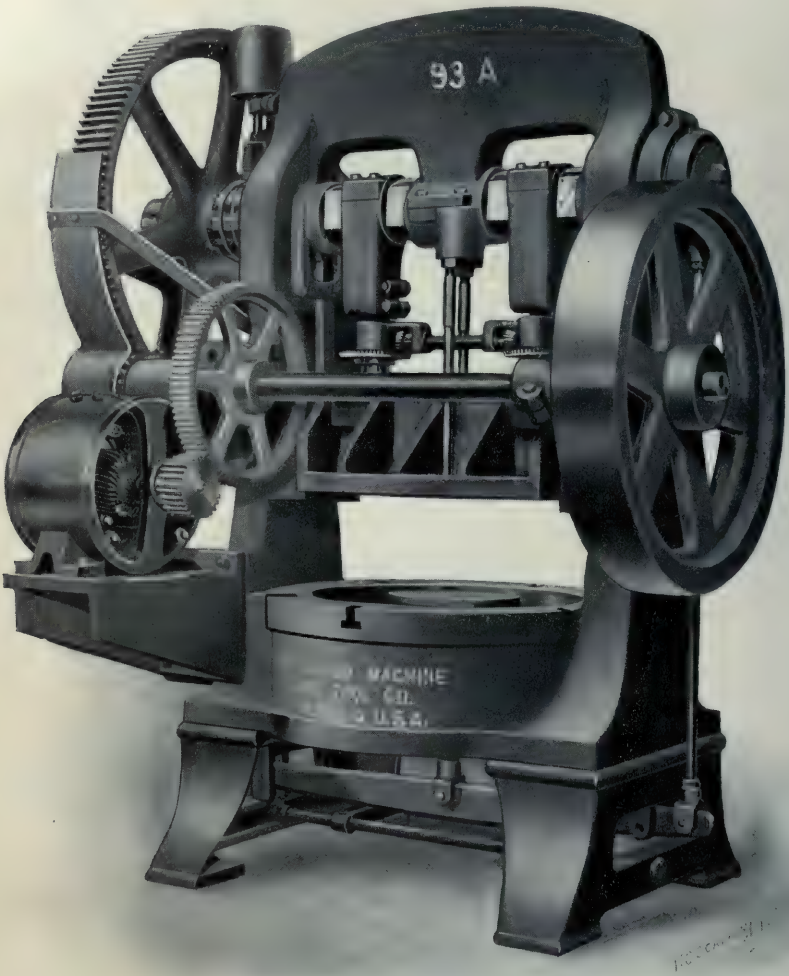


WHERE round or other special beds are required, we can furnish any of our different sizes of double crank Presses with special beds. The Press illustrated above is designed and adapted for the requirements of manufacturers of electrical apparatus, steel barrels and other large work of the lighter gauges of metal.

The rod knockout in the slide and the cam actuated liftout in the bed positively strip work from the punch and die, and are particularly advantageous in connection with compound dies for armature discs, as well as with combination dies for cutting and forming steel barrel heads and similar work in one operation. Total weight about 14,000 lbs.

General description, page 237. Dimensions, page 249. Code Word............

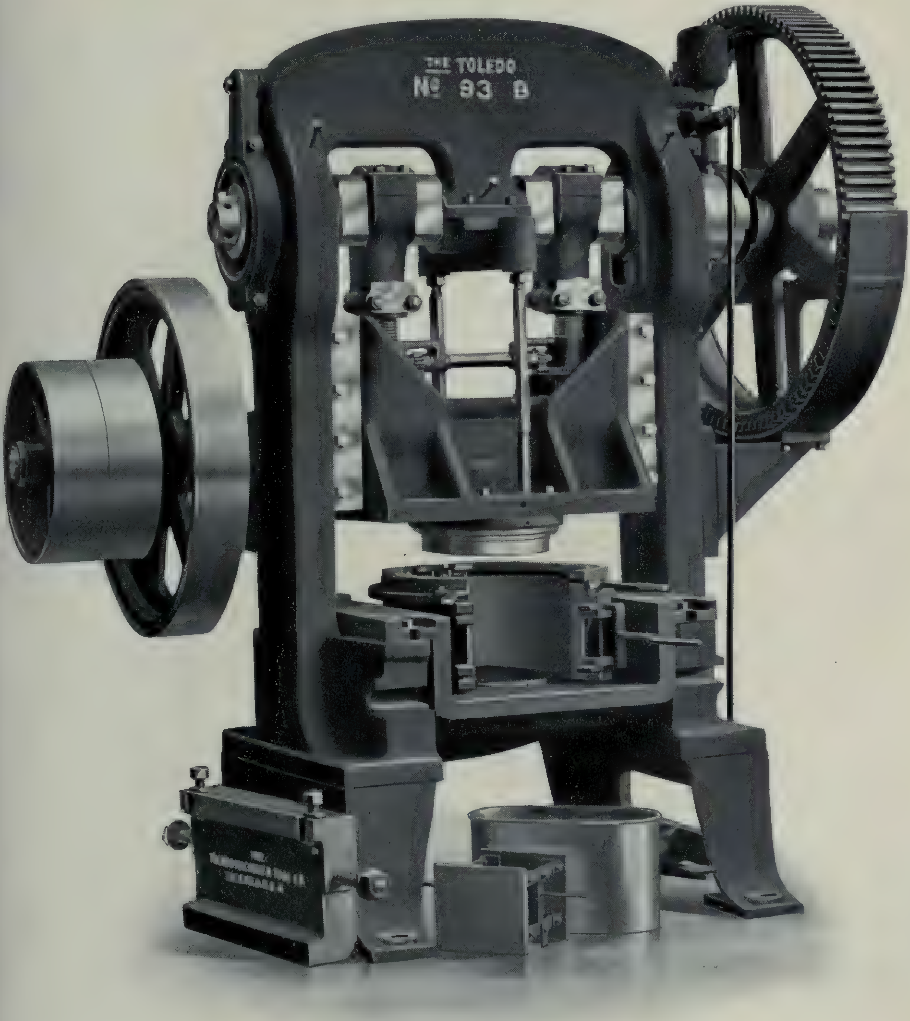
The "Toledo" No. 93-A Double Crank Press, Geared With Round Bed



THE above illustration is a rear view of one of our 36-inch No. 93-A Presses with round bed, fitted with direct-connected motor-drive. The construction shown is rigid and compact and does not interfere with the accessibility to the Press from the rear. Total weight about 14,000 lbs.

General description, page 237. Dimensions, page 249. Code Word...........

The "Toledo" No. 93-B, 42-inch Double Crank Power Press Geared



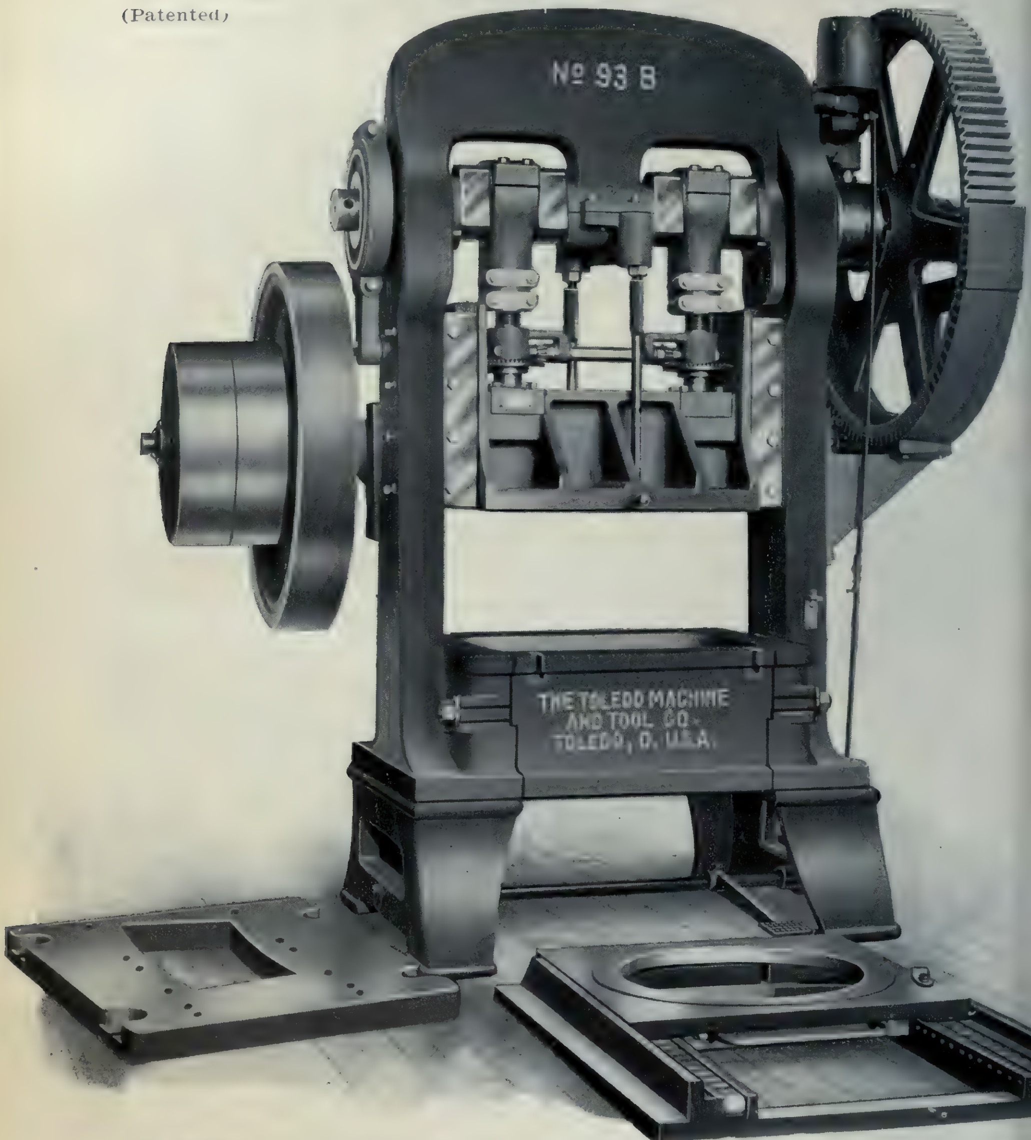
THIS Press is designed and specially suited for a general range of blanking, forming, horning and wiring operations on pieced tinware in factories having only a limited output, or where shop conditions will not permit of installing separate machines for a variety of operations.

Press is furnished with solid bed or with removable front piece to bed as desired. Dies shown are for wiring Nos. 8 and 9 wash boilers, the lower die being arranged with open-and-shut jaw to facilitate the quick removal of finished work. Total weight about 15,000 lbs.

General description, page 237. Dimensions, page 249. Code Word............

The "Toledo" No. 93-B, 42-inch Double Crank Press, Geared

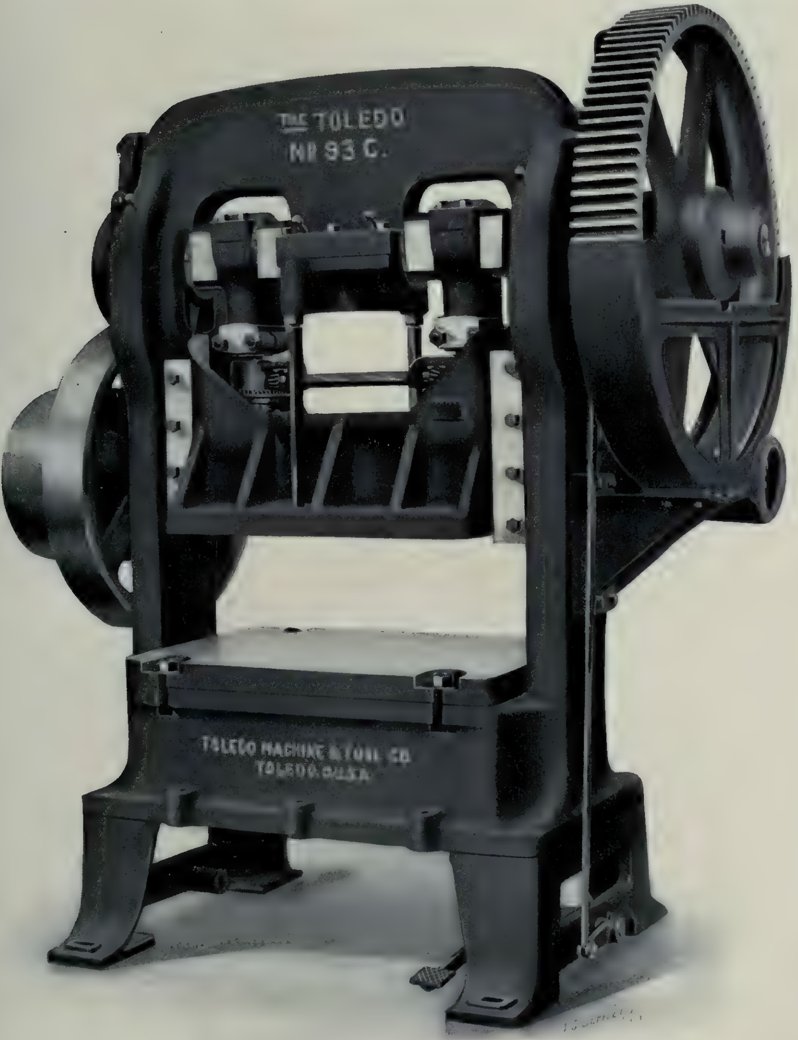
(Patented)



A SPECIAL positive safety locking device, not shown in cut, is fitted to sliding plate and clutch operating mechanism, which insures the safety of the operator and dies by preventing the operating or engaging of clutch mechanism until the tools or dies are in correct position. This attachment is suited to wiring dies for wash tubs and other work where a sliding die plate is required. The removable front, placed in position with regular bolster plate, adapts Press to large cutting, combination and stamping dies in the manufacture of a general line of pieced tin and stamped ware. Built with removable or solid front, as ordered.

General description, page 237, Dimensions, page 249

The "Toledo" No. 93-C, 48-inch Double Crank Press, Geared



PRESS above is adapted to heavy blanking, forming and embossing, and is extensively employed by automobile manufacturers for blanking and forming tool box covers, fender aprons, doors, hoods, broiler pans and other gas stove parts, and a wide variety of similar work. Total weight about 15,900 lbs.

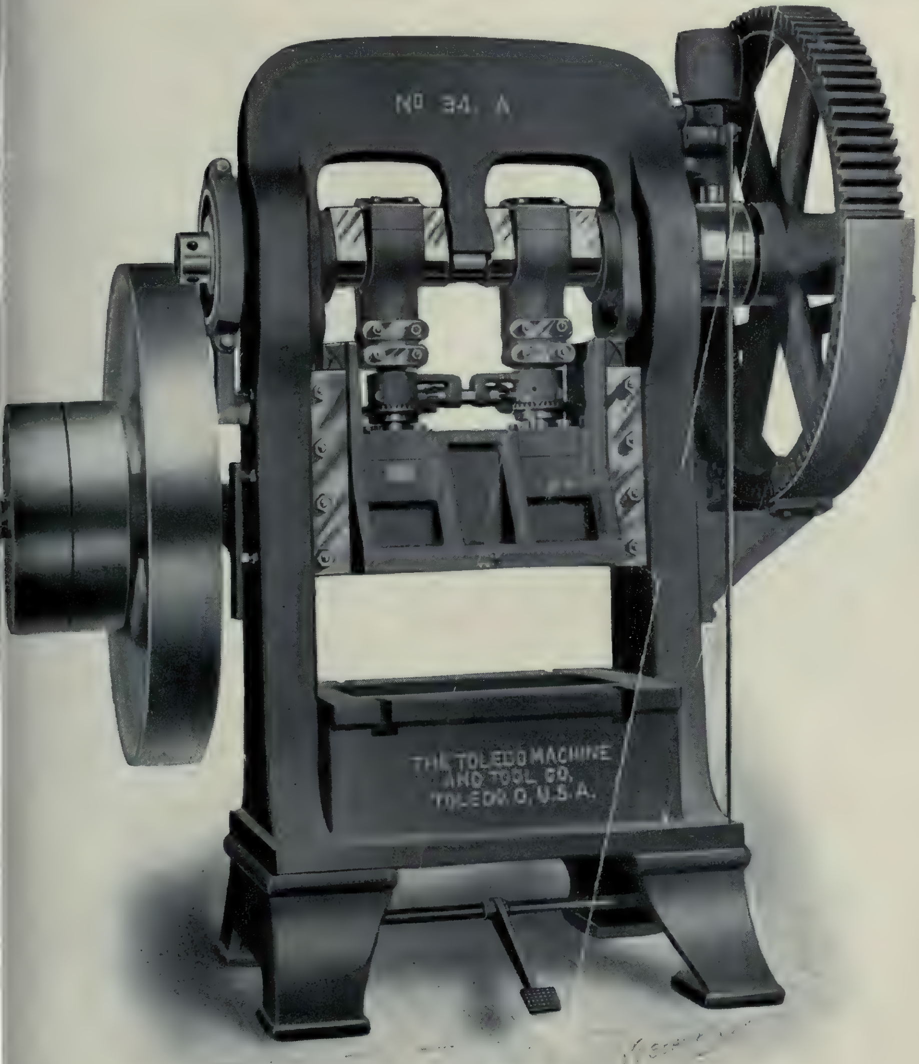
General description, page 237. Dimensions, page 249. Code Word............

The "Toledo" Double Crank Blanking, Forming and Embossing Presses

Number of Press Page of Catalogue	94-A 257	94-B	94-C 260	94-D 262	94-E	94-F 263	94-G	94-H	94-I 264
PLAIN PRESS									
Price including bolster plate	$.....	$.....	$.....	....	....	....	....	....	....
Price of extra bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	21100	21600	22200	....	....	....	....	....	....
*Area of slide flange, F. to B., R. to L. inches	26 x 31	26 x 35	26 x 39	26 x 45	26 x 51	26 x 63	26 x 75	32 x 87	32 x 101
*Area of bed, F. to B., R. to L. ... inches	36 x 40	36 x 44	36 x 48	36 x 54	36 x 60	36 x 72	36 x 84	46 x 96	36 x 110
*Opening in bed, F. to B., R. to L. ... inches	24 x 30	24 x 34	24 x 38	24 x 44	24 x 50	24 x 60	24 x 72	32 x 84	22 x 96
Width between housings ... inches	40	44	48	54	60	72	84	96	110
*Standard stroke of slide ... inches	3	3	3	3	3	3	3	3	3
Maximum stroke of slide ... inches	9	9	9	9	9	10	10	10	10
Adjustment of slide ... inches	3	3	3	3	3	3	3	3	3
*Distance bed to slide, str. and adj. up .. in.	14	14	14	14	14	21	21	21	21
Thickness of bolster plate ... inches	3	3	3	3	3	3	3	3	3
Diameter and face of flywheel ... inches	60 x 7½	60 x 7½	60 x 7½	....	....	....	....	....	....
Weight of flywheel ... pounds	2150	2150	2150	....	....	....	....	....	....
Speed of flywheel ... R. P. M.	70	70	70	....	....	....	....	....	....
Distance floor to center of shaft .. inches	84	84	84	84	84	88	103	103	103
Floor space over all, F. to B., R. to L. ...	60 x 90	60 x 94	60 x 98	....	....	....	....	....	....
Floor space of base, F. to B., R. to L. ...	56 x 56	56 x 60	56 x 64	56 x 70	56 x 76	56 x 92	56 x 104	56 x 116	56 x 130
GEARED PRESS									
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	23000	23500	24300	25100	26500	33000	39000	43000	52000
Proportion of gearing, about	7½:1	7½:1	7½:1	7½:1	7½:1	7½:1	7½:1	7½:1	7½:1
Diameter of gear ... inches	61	61	61	61	61	61	61	61	61
Size of balance wheel ... inches	60 x 7	60 x 7	60 x 7	60 x 7	60 x 7	60 x 7	60 x 7	60 x 7	60 x 7
Weight of balance wheel ... pounds	1400	1400	1400	1400	1400	1400	1400	1400	1400
Size of belt wheel ... inches	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6
Speed of belt wheel ... R. P. M.	225	225	225	225	225	225	225	225	225
Strokes of slide per minute	30	30	30	30	30	30	30	30	30
Floor space over all, F. to B., R. to L. ...	75 x 108	75 x 112	75 x 116	75 x 122	75 x 128	84 x 144	84 x 156	84 x 168	84 x 182
	1-piece frame					1 and	4-piece frame		

*These can be changed.

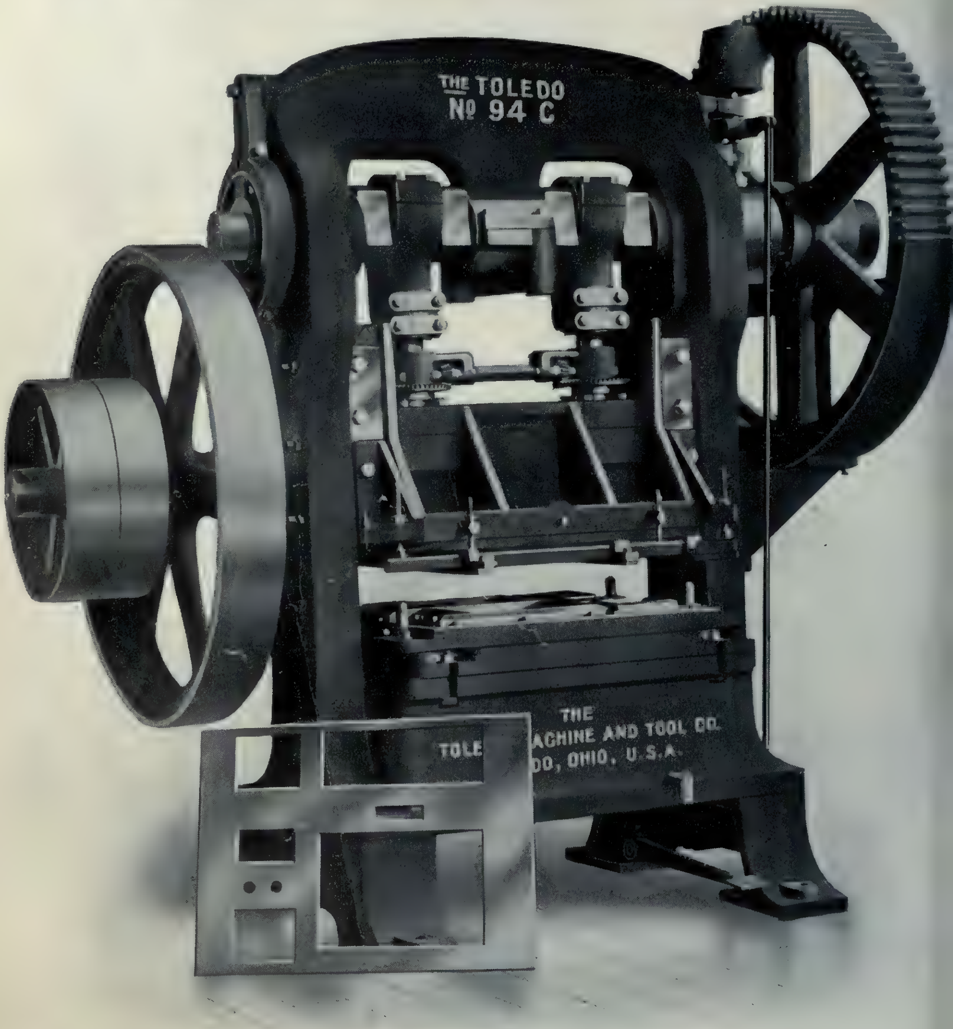
The "Toledo" No. 94-A, 40-inch Double Crank Press, Geared



THIS Press is used successfully for a heavy class of work in blanking, perforating, forming, drawing and embossing on steel, gas range and stove parts, metal ceilings and sidings; also for armature disc and segment blanking, hot and cold trimming of drop forgings and similar work. Total weight about 23,000 lbs.

General description, page 237. Dimensions, page 256.
Code Word as shown............

The "Toledo" No. 94-C, 48-inch Double Crank Press, Geared



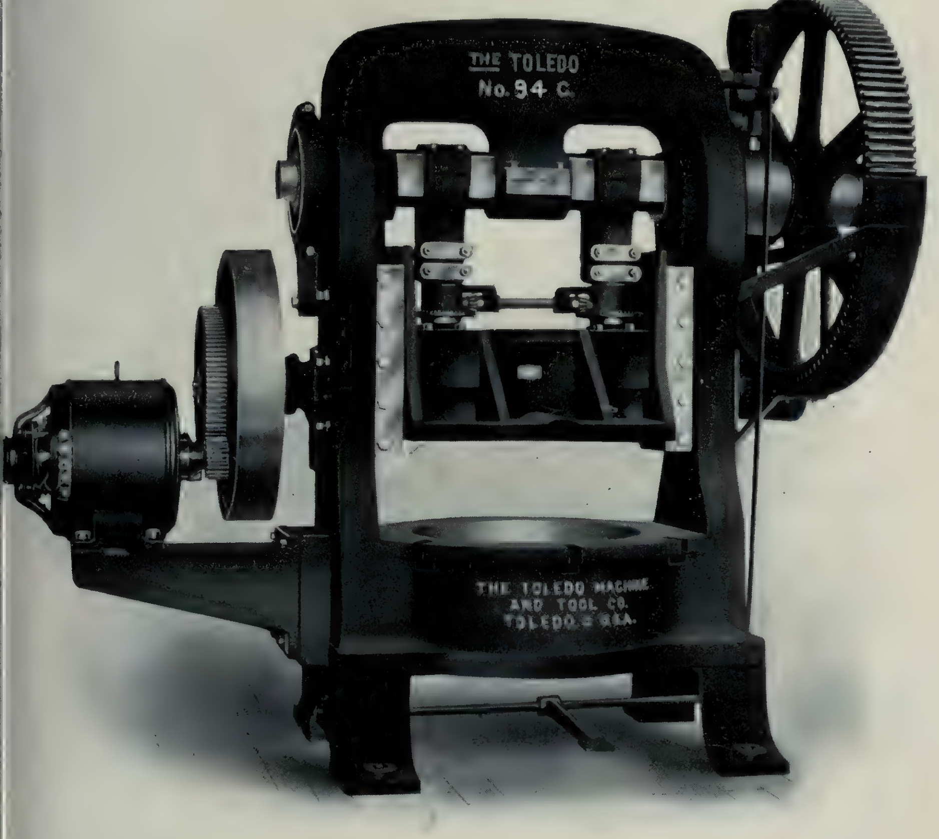
OUR 48-inch No. 94-C Double Crank Geared Press is designed for the use of manufacturers of stamped steel stove parts, steel advertising signs, etc. The illustration shows a set of gang or group dies fitted with self-setting guide pins, and with automatic positive stripper attached to slide.

These dies are securely mounted on substantial holders and are made adjustable, when desired, to suit several sizes of stove fronts. The dies, as shown, cut seven openings at one stroke of the Press. These machines are in use by nearly all of the large stove manufacturers in this country and are adapted to a wide range of cutting, drawing, forming, embossing and perforating for various classes of sheet metal work.

Net shipping weight of this Press, as illustrated, is about 25,000 lbs.

General description, page 237. Dimensions, page 256. Code Word............

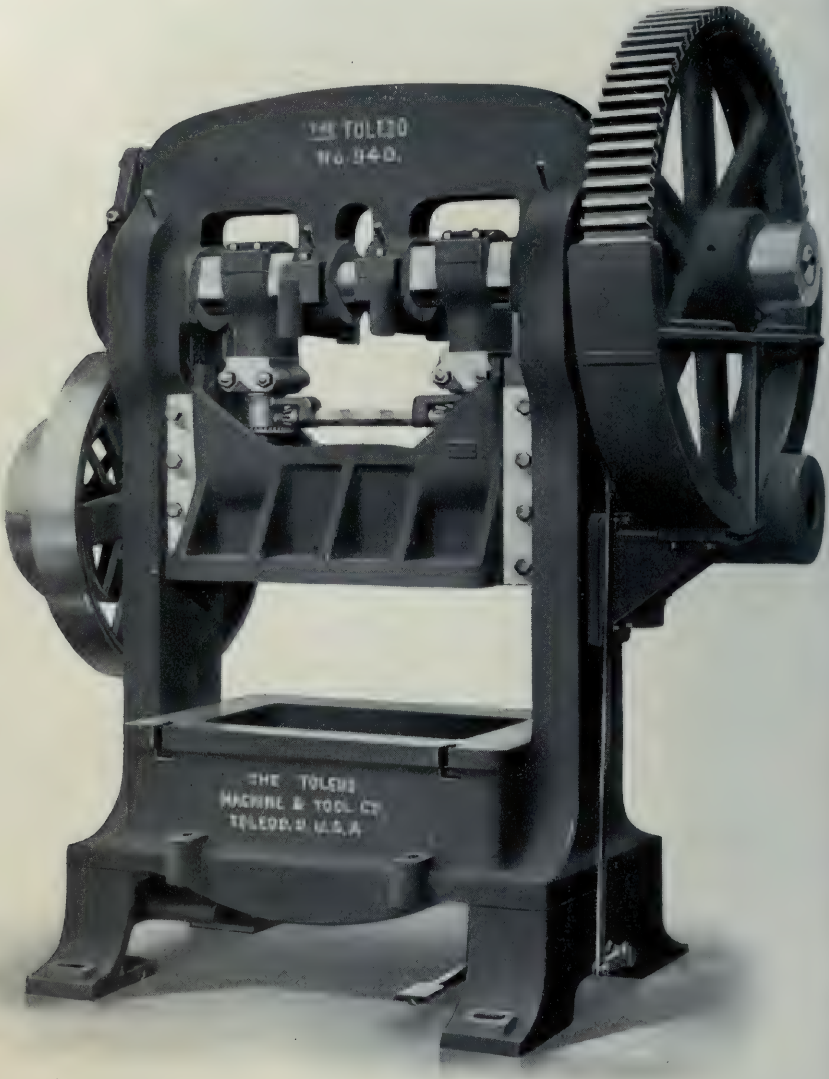
The "Toledo" No. 94-C Double Crank Press, Geared With Round Bed



THE special construction for direct-connected motor-drive, as illustrated above, is designed so as to leave the rear of machine entirely unobstructed. While this is not as compact a construction as shown on the motor-driven No. 93-A Press on page 226, it is a desirable feature where large work is handled on the Press and direct-connected motor-drive is used. Total weight about 24,300 lbs.

General description, page 237. Dimensions, page 256. Code Word...........

The "Toledo" No. 94-D, 54-inch Double Crank Press, Geared

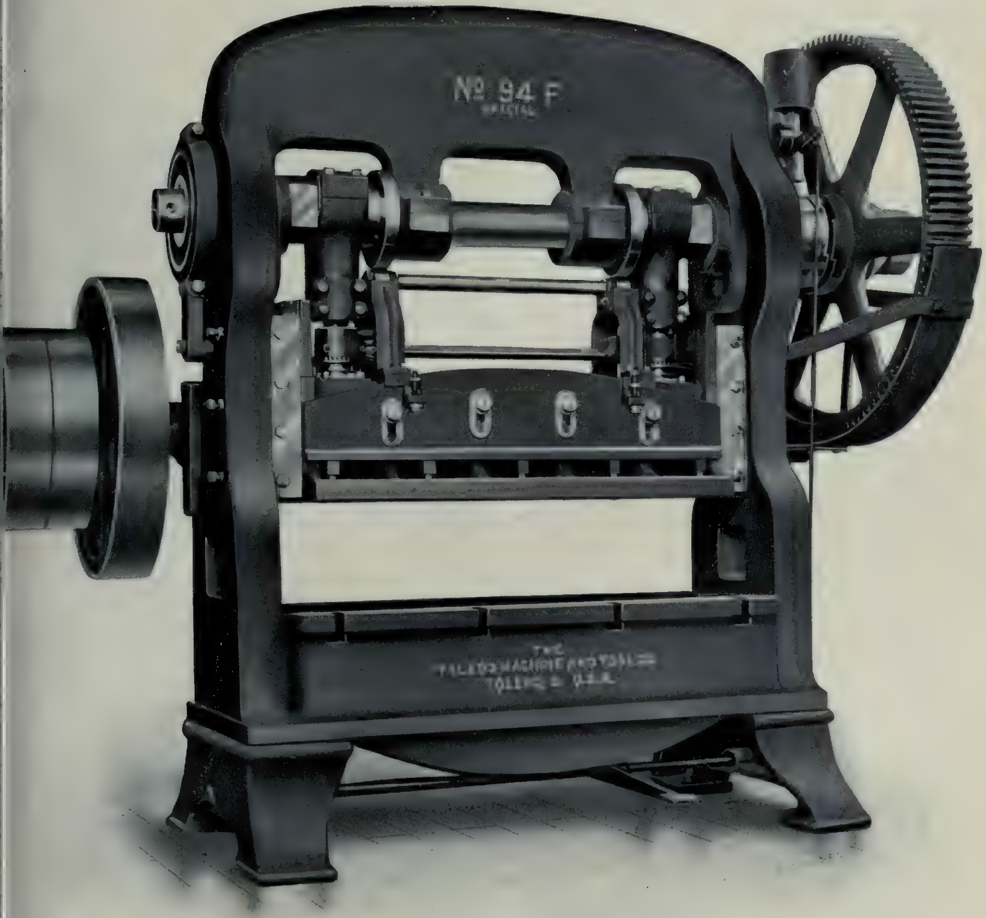


PRESS above is designed and used for blanking, forming and embossing steel range fronts, doors and other parts, automobile doors, hoods and panels, and a wide range of other medium heavy work. Total weight about 25,100 lbs.

General description, page 237. Dimensions, page 256. Code Word...........

The "Toledo" No. 94-F, 72-inch Double Crank Press, Geared

(Patented)

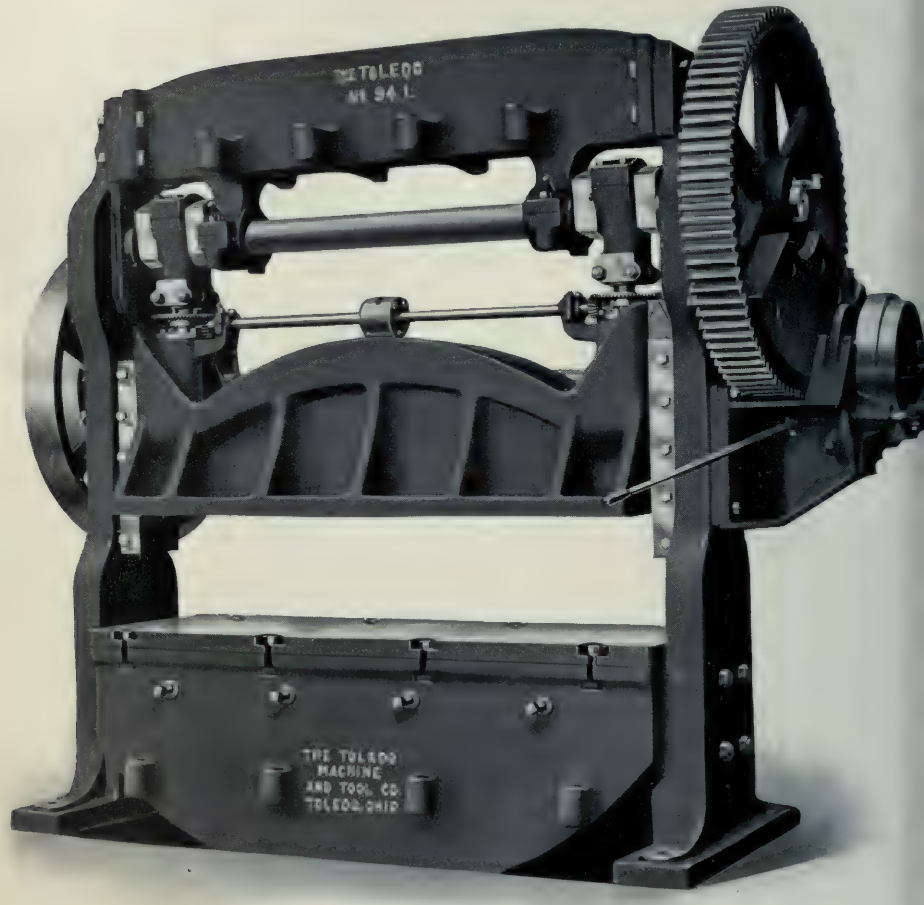


THE openings through the housings of this Press permit long strips or bars to be passes through from right to left, or vice versa. Fitted with cam-actuated automatic positive stripper and blank holder.

Adapted to shearing, blanking, multiple punching and perforating, as well as to forming and embossing on interlocking steel window frames, steel and brass bed parts, agricultural implement parts, etc. Total weight about 33,000 lbs.

General description, page 237. Dimensions, page 256. Code Word..............

The "Toledo" No. 94-I, 110-inch Double Crank Press, Geared



PRESS above is adapted and used for blanking, forming, trimming and perforating automobile radiator parts, fenders, aprons, hoods, steel lockers, metal furniture and other large work. Weight approximately 52,000 lbs.

General description, page 237. Dimensions, page 256. Code Word..............

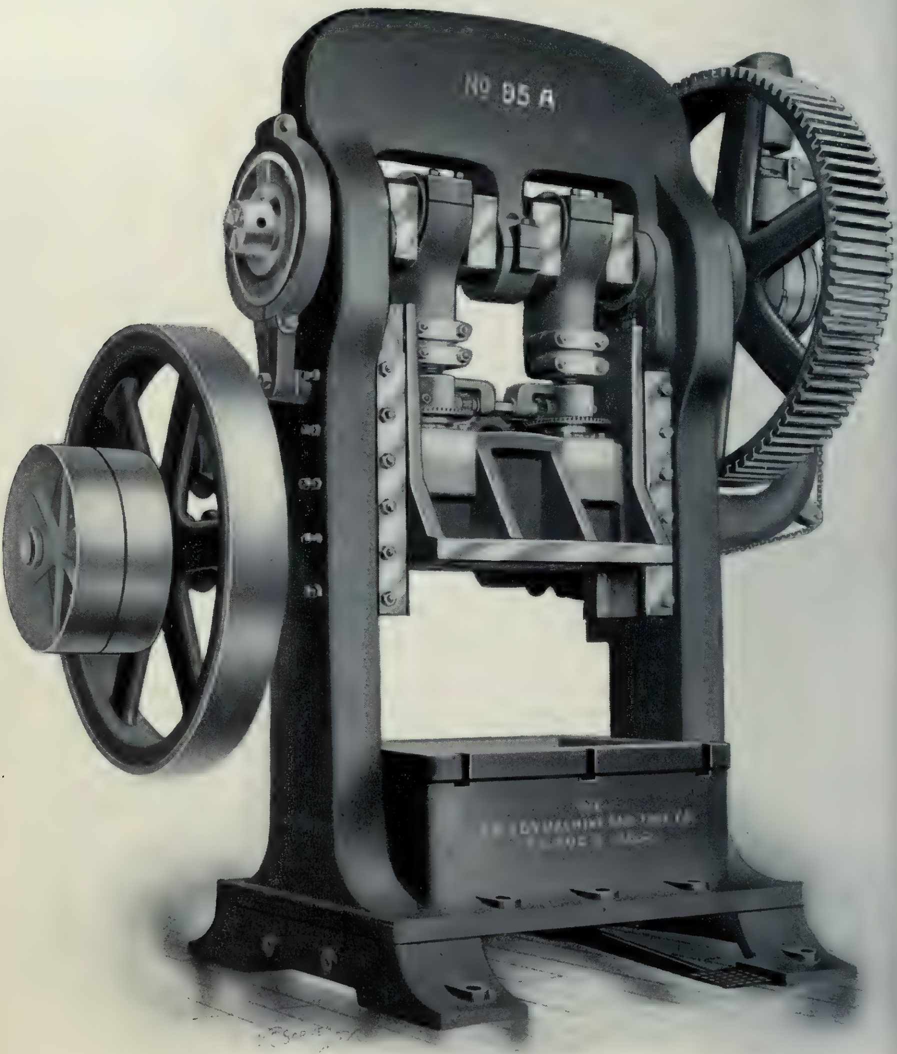
The "Toledo" Double Crank Blanking, Forming and Embossing Presses

Number of Press	95-A	95-B	95-C	95-D	95-E	95-F	95-G	95 Spec.	95-E Spec.
Page of Catalogue	264	266	269	....	268	....	....	266	267
SINGLE GEARED PRESS									
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	....	$.....
Price of extra bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	35300	36800	38200	....	....	....	....	....	....
*Area of slide flange, F. to B., R. to L. .in.	28 x 38	28 x 44	28 x 50	28 x 66	28 x 78	28 x 90	28 x 104	28 x 50	24 x 78
*Area of bed, F. to B., R. to L. ... inches	40 x 48	40 x 54	40 x 60	40 x 72	40 x 84	40 x 96	40 x 110	44 x 54	24 x 84
*Opening in bed, F. to B., R. to L. .inches	26 x 38	26 x 44	26 x 50	26 x 67	26 x 79	26 x 91	26 x 105	solid	8 x 72
Width between housings ... inches	48	54	60	72	84	96	110	54	84
*Standard stroke of slide ... inches	3	3	3	3	3	3	3	3	3
Maximum stroke of slide ... inches	11	11	11	22	22	22	22	11	11
Adjustment of slide ... inches	3	3	3	3	3	3	3	3	3
*Distance bed to slide, str. and adj. up. .in.	15	15	15	19	19	19	19	16	15
Thickness of bolster plate ... inches	3½	3½	3½	3½	3½	3½	3½	....	3½
Diameter of gear ... inches	74	74	74	....	....	....	....	....	74
Proportion of gearing	8:1	8:1	8:1	....	....	....	....	....	8:1
Size of balance wheel ... inches	60 x 8	60 x 8	60 x 8	....	....	....	....	....	60 x 8
Weight of balance wheel ... pounds	2000	2000	2000	....	....	....	....	....	2000
Size of belt wheel ... inches	30 x 8	30 x 8	30 x 8	....	....	....	....	....	30 x 8
Speed of belt wheel ... R. P. M.	225	225	225	....	....	....	....	....	225
Strokes of slide per minute	30	30	30	....	....	....	....	....	30
Distance floor to center of shaft. .inches	92	92	92	94	94	94	94	87	94
Floor space over all, F. to B., R. to L. inches	85 x 124	85 x 130	85 x 139	....	....	....	....	....	85 x 164
Floor space of base, F. to B., R. to L. inches	70 x 64	70 x 70	70 x 76	70 x 98	70 x 110	70 x 122	70 x 134	50 x 83	72 x 102
DOUBLE GEARED PRESS									
Price	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	36800	38300	39800	43000	50600	58800	69000	40300	44800
Proportion of gearing, about	22:1	22:1	22:1	22:1	22:1	22:1	22:1	22:1	22:1
Diameter of gear ... inches	61	61	61	61	61	61	61	61	61
Size of balance wheel ... inches	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7
Weight of balance wheel ... pounds	1250	1250	1250	1250	1250	1250	1250	1250	1250
Size of belt wheel ... inches	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6
Speed of belt wheel ... R. P. M.	375	375	375	375	375	375	375	375	375
Strokes of slide per minute	17	17	17	17	17	17	17	17	17
Floor space over all, F. to B., R. to L. inches	84 x 118	84 x 124	84 x 139	88 x 152	88 x 164	88 x 176	88 x 190	88 x 124	84 x 158
	1-piece frame			Tie-rod construction				Tie rods	4-piece frame

*These can be changed.
60-inch machine furnished with tie-rod construction when ordered.

The "Toledo" No. 95-A, 48-inch Double Crank Press, Geared

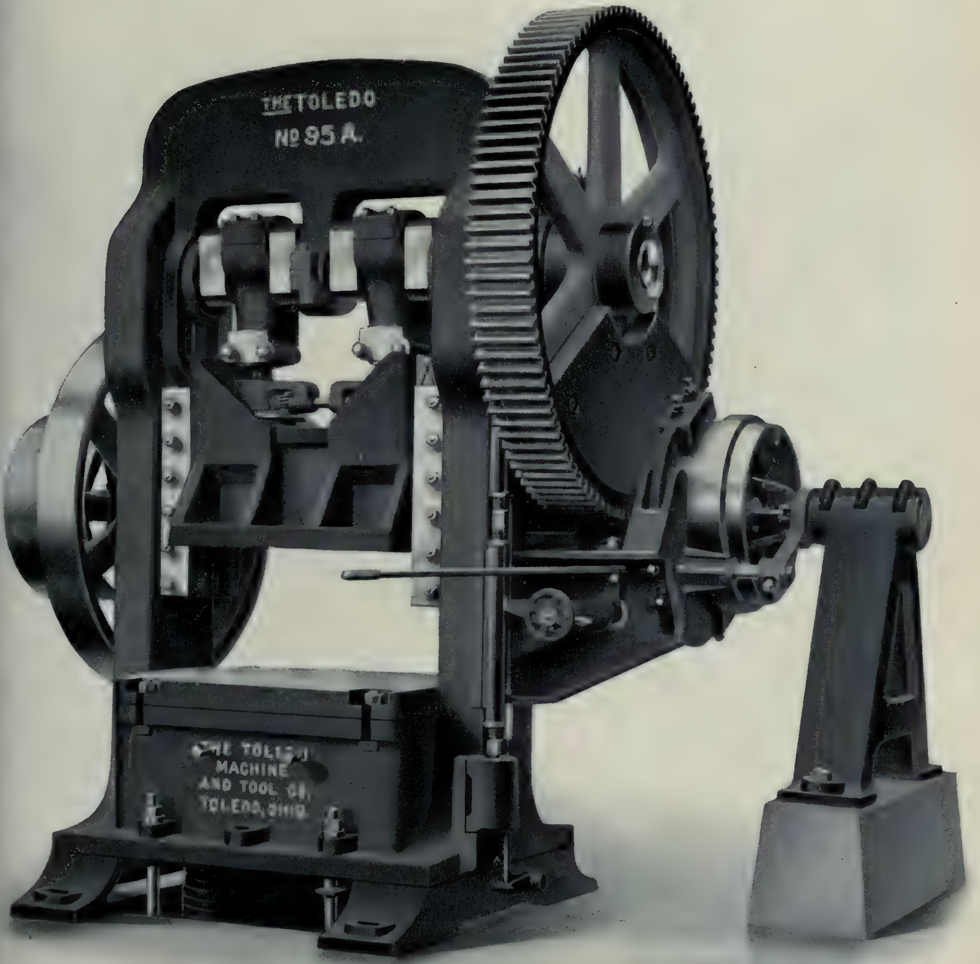
(Patented)



THIS size Press is particularly suited for cutting and forming tops and other parts of gas stoves and ranges, pressed steel radiator loops, large metal boxes, and a wide range of work where a large, powerfully built Press is required for embossing, forming, cutting, etc. Total weight about 37,000 lbs.

General description, page 237. Dimensions, page 263. Code Word...........

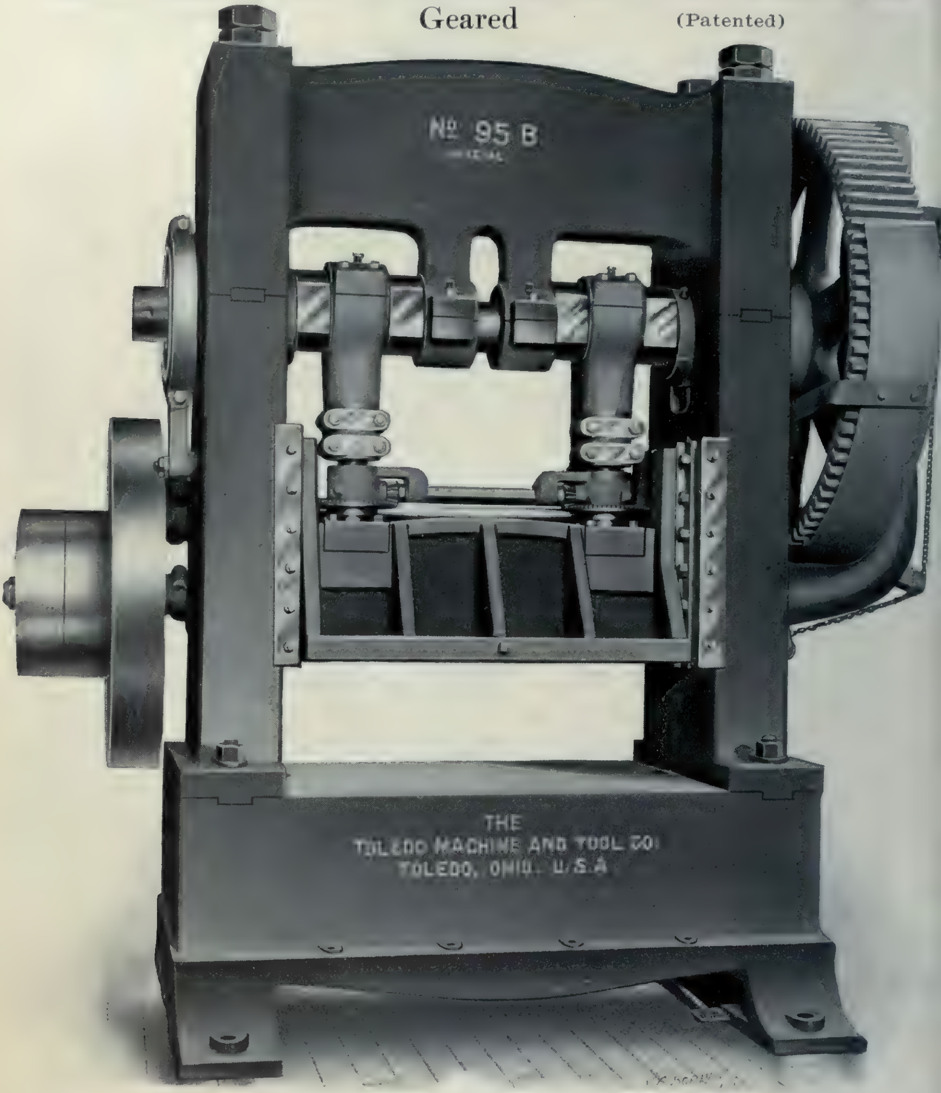
The "Toledo" No. 95-A, 48-inch Double Crank Press, Geared



THIS Press is similar to the one on preceding page, except fitted with our automatic friction clutch with ring-oiling outboard bearing. As shown in illustration, this machine is also fitted with self-contained spring pressure or drawing attachment, which with the long stroke and high die space adapts this Press for such work as steel car seats and pedestals, steel wheels, dashes and other automobile parts, steel barrel heads and a wide range of other deep drawn work. Total weight about 40,000 lbs.

General description, page 237. Dimensions, page 263. Code Word............

The "Toledo" No. 95-B, 55-inch Special Double Crank Press Geared (Patented)



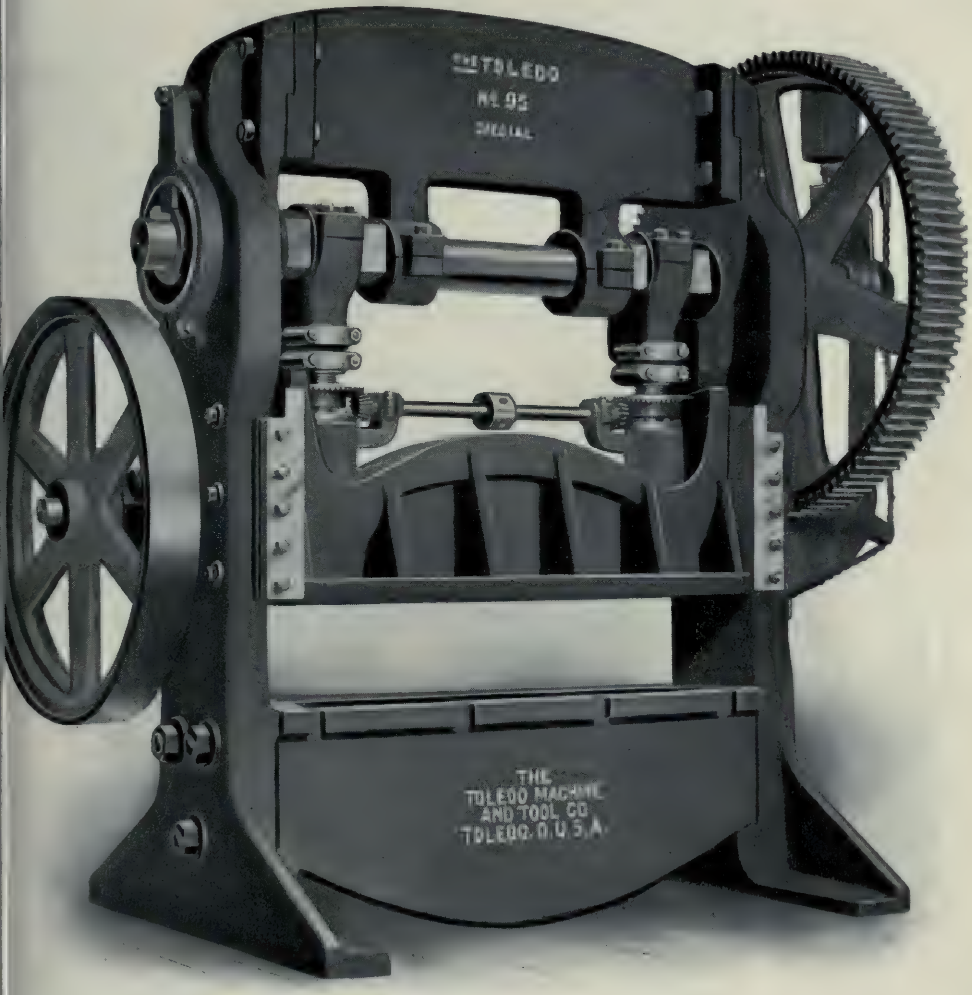
THIS Press is built in a similar manner to our No. 95-E described on page 268, with a built up frame. The arch, uprights and bed are accurately tongued and fitted together, and securely held together by four large steel rods passing entirely through these parts.

Specially suited and fitted for large and deep forming in steel, brass or aluminum and is well suited for the manufacturing of decorated steel sheets, such as lithographed trays, signs, advertising novelties, etc.; also suited for use in the manufacturing of steel office and fire-proof furniture. Built in 10 sizes and in a variety of widths. Total weight 42,000 lbs.

General description, page 237. Dimensions, page 263. Code Word...........

The "Toledo" No. 95 Special 84-inch Double Crank Press Single Geared

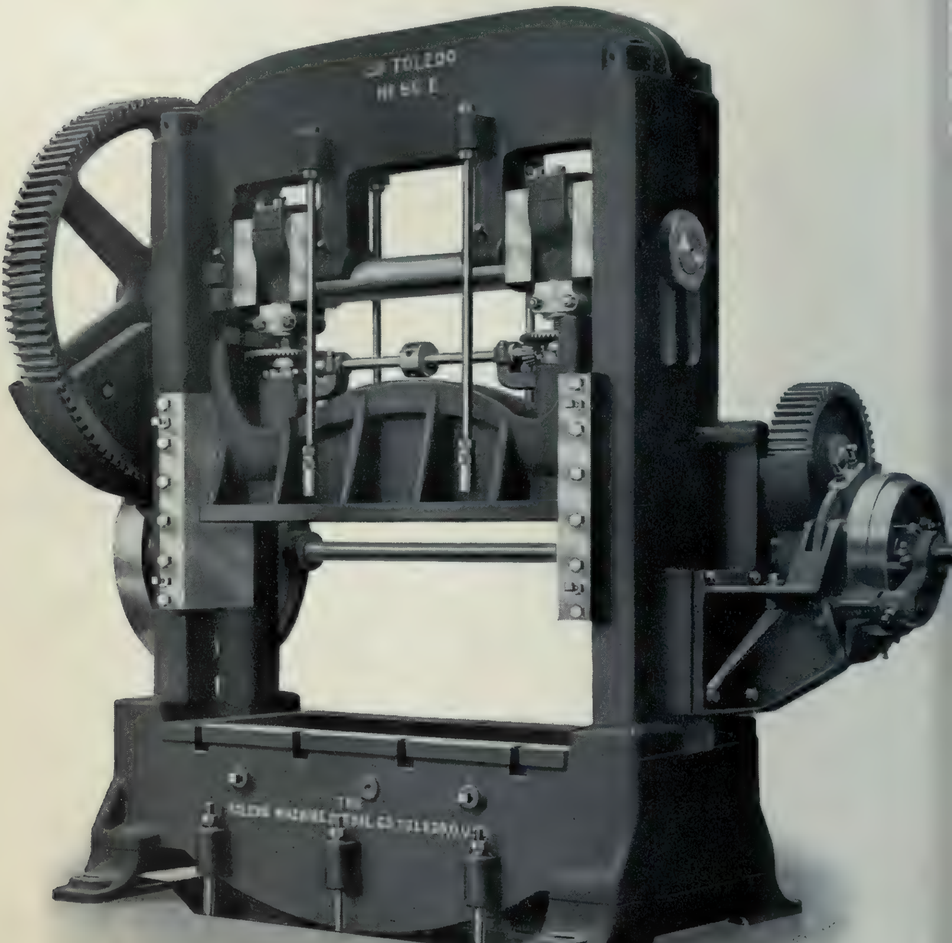
(Patented)



THIS Press is adapted to same line of work as Presses shown on preceding pages and is extensively used for cutting, in the heavier gauges of metal, large discs and segments for dynamos and motors; also for blanking, perforating and embossing metal furniture, metal boxes, automobile fenders, aprons and similar work. Total weight about 42,000 lbs.

General description, page 237. Dimensions, page 263. Code Word...........

The "Toledo" No. 95-E, 84-inch Double Crank Press, Double Geared



WHILE this Press has the same capacity as Press shown on preceding page, the long stroke, high die space and self-contained drawing attachment, adapt this Press to a much wider range of work.

This Press is widely used for forming and other operations on automobile hoods, engine-pans, bodies and seats, steel range and other heavy stamped and formed parts.

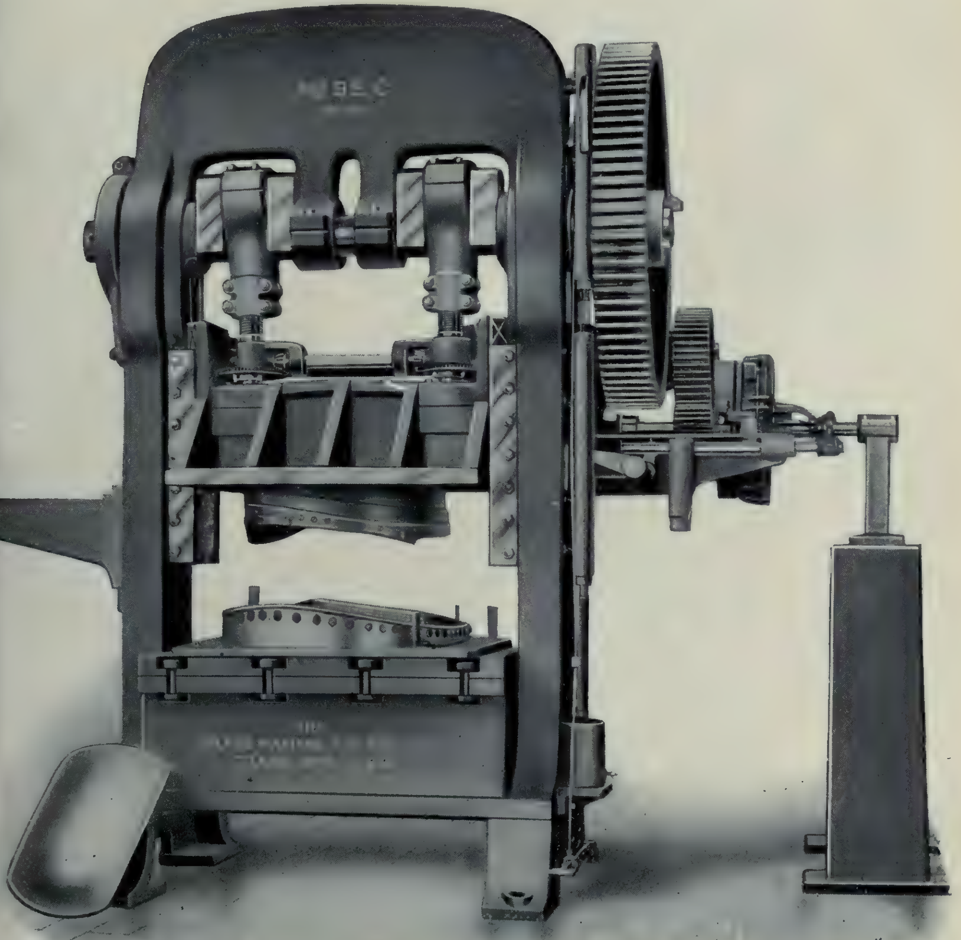
Attention is also called to our new form knockout in the slide operated by adjustable rods extending down from the arch of the Press.

The illustration also shows another manner of attaching the friction clutch so as to eliminate the outboard bearing. Total weight about 51,000 lbs.

General description, page 237. Dimensions, page 263. Code Word...........

The "Toledo" No. 95-C, 60-inch Double Crank Press, Geared With Friction Clutch

(Patented)



OUR New Pattern, 60-inch Double Crank Press No. 95-C is designed and used especially for trimming and wiring pressed steel sinks, wheelbarrow trays, road scrapers, and a similar class of work.

Press is shown with a set of dies in position for edging or wiring wheelbarrow trays. As the work is completed, it is allowed to drop through the bed of the Press, thus saving time and labor in handling.

Provided with our automatic friction clutch which allows the slide to be stopped at any desired point, making it particularly advantageous in setting dies.

Opening in bed 26 x 50 inches. Total weight about 40,000 lbs.

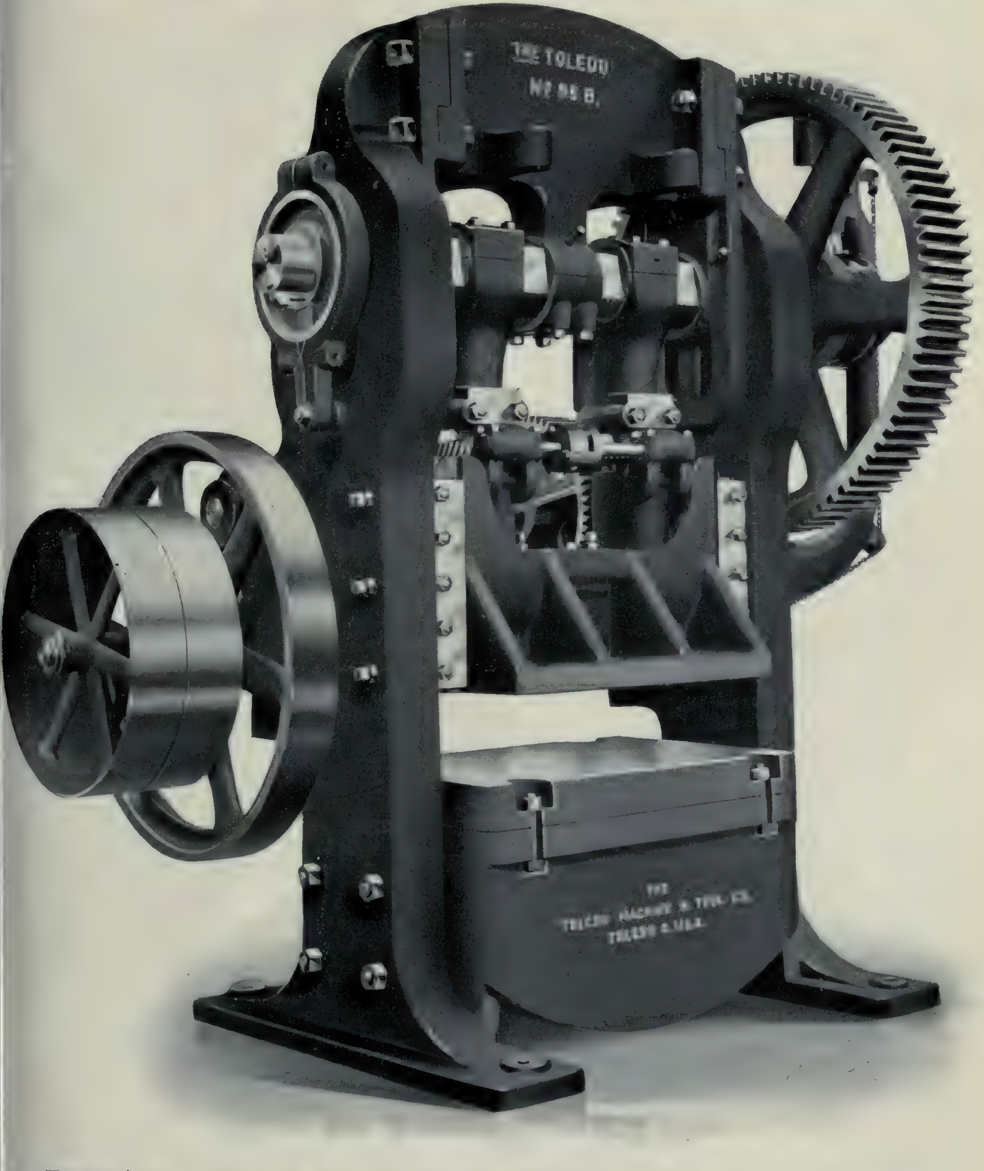
General description, page 237. Dimensions, page 263. Code Word...........

The "TOLEDO" Double Crank Blanking, Forming and Embossing Presses With "TOLEDO" Friction Clutches

Number of Press	96-A	96-B	96-C	96-D	96-E	96-F	96-G	96-H	96½-A Special
Page of Catalogue	....	271	272	....	274	....	273	....	275
DOUBLE GEARED PRESS									
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	51000	57300	63000	69600	78000	98000	120000	140000	71000
*Area of slide flange, F. to B., R. to L. inches	32 x 36	32 x 48	32 x 65	32 x 77	36 x 95	36 x 117	36 x 141	36 x 161	36 x 37
*Area of bed, F. to B., R. to L. ... inches	42 x 48	42x 60	51 x 72	51 x 84	51 x 102	51 x 124	51 x 148	51 x 163	52 x 48
*Opening in bed, F. to B., R. to L. ... inches	28 x 38	28 x 48	28 x 60	32 x 72	32 x 90	32 x 112	32 x 142	32 x 162	38 x 36
Width between housings ... inches	48	60	72	84	103	125	149	169	48
*Standard stroke of slide ... inches	4	4	4	4	4	4	4	4	4
Maximum stroke of slide ... inches	12	12	18	18	18	18	24	24	24
Adjustment of slide ... inches	4	4	4	4	4	4	4	4	4
*Distance bed to slide, str. and adj. up .. in.	18	25	28	28	28	28	28	28	23
Thickness of bolster plate ... inches	4	4	4	4	4	4	4	4	4½
Diameter of main gear ... inches	74	74	74	74	74	74	74	74	84
Proportion of gearing, about ...	37:1	37:1	37:1	37:1	37:1	37:1	37:1	37:1	30:1
Size of balance wheel ... inches	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8
Weight of balance wheel ... pounds	2000	2000	2000	2000	2000	2000	2000	2000	2000
Size of belt wheel ... inches	32 x 8	32 x 8	32 x 8	32 x 8	32 x 8	32 x 8	32 x 8	32 x 8	34 x 8
Speed of belt wheel ... R. P. M.	375	375	375	375	375	375	375	375	330
Strokes of slide per minute ...	10	10	10	10	10	10	10	10	10
Distance floor to center of shaft .. inches	102	110	110	110	110	110	116	116	117
Floor space over all, F. to B., R. to L. inches	92 x 166	92 x 180	92 x 196	92 x 208	92 x 228	92 x 250	96 x 284	96 x 308	100x145
Floor space of base, F. to B., R. to L. inches	72 x 130	85 x 144	85 x 160	85 x 172	85 x 192	85 x 214	95 x 247	95 x 267	80 x 70
	1-piece frame	4-piece frame	Tie-rod construction				Twin geared		

*These can be changed.

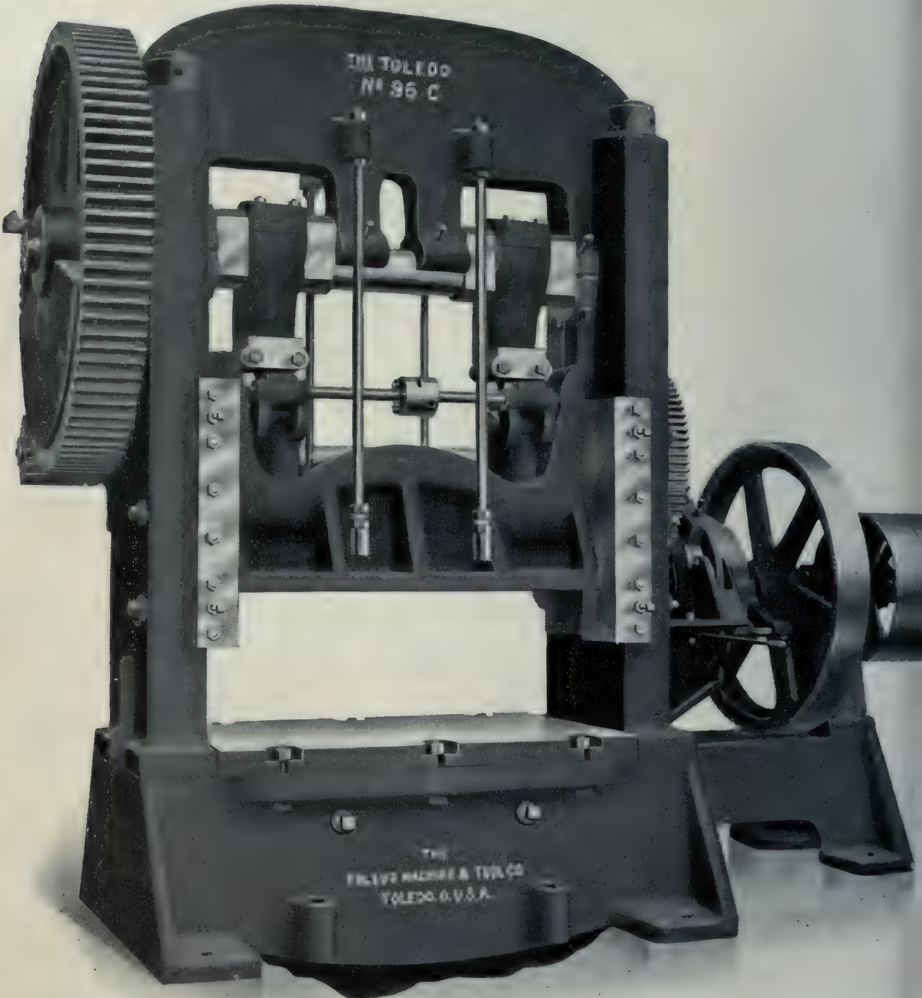
The "Toledo" No. 96-B, 60-inch Double Crank Press, Geared



THE above Press is designed and used for blanking, drawing, forming and embossing the heavier gauges of stove tops, bases, fronts and other parts of gas ranges; producing parts for steel lockers, cabinets and pressed steel cars; forming and perforating cross-members for automobiles, underframes, also blanking and forming hoods, dashes, seat and body-panels; operating drawing, perforating and compound dies for armature discs, segments, etc. Total weight about 57,300 lbs.

General description, page 237. Dimensions, page 270. Code Word...........

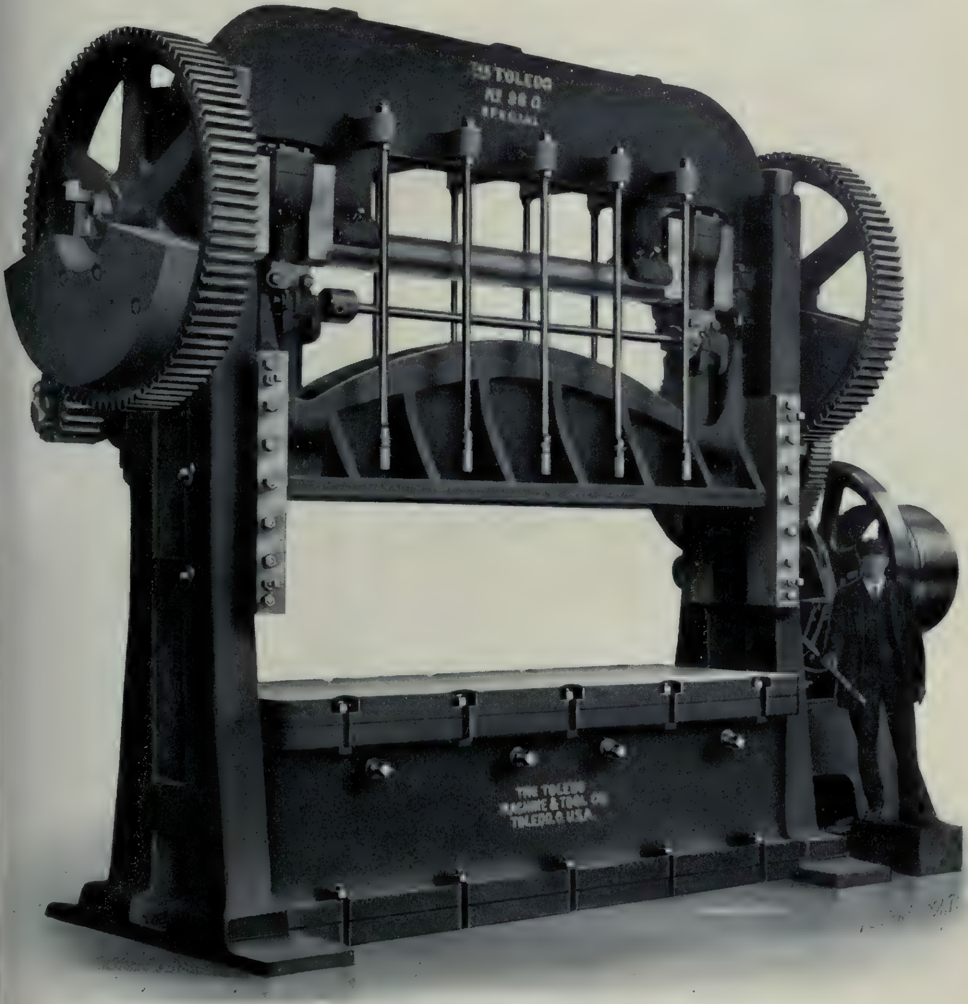
The "Toledo" No. 96-C, 72-inch Double Crank Press, Geared



PRESS is fitted with friction clutch and steel tied frame. Our quick acting friction clutch gives positive and complete control of the press slide at all points. The tie rods relieve housings of all strain, being of ample diameter to withstand any work within bending limit of the shaft. This Press is widely used in the manufacture of re-inforced concrete steel work, metal doors and windows, steel tubing and channels, and a variety of kindred work. Total weight about 63,000 lbs.

General description, page 237. Dimensions, page 270. Code Word...........

The "Toledo" No. 96-G Double Crank Press, Double Geared



THE Press, as illustrated, is adapted for blanking and forming burial vault covers, hotel and Pullman car refrigerator parts, and other large work in the heavier gauges of sheet steel, also metal seats and bodies for buggies, automobiles, etc.

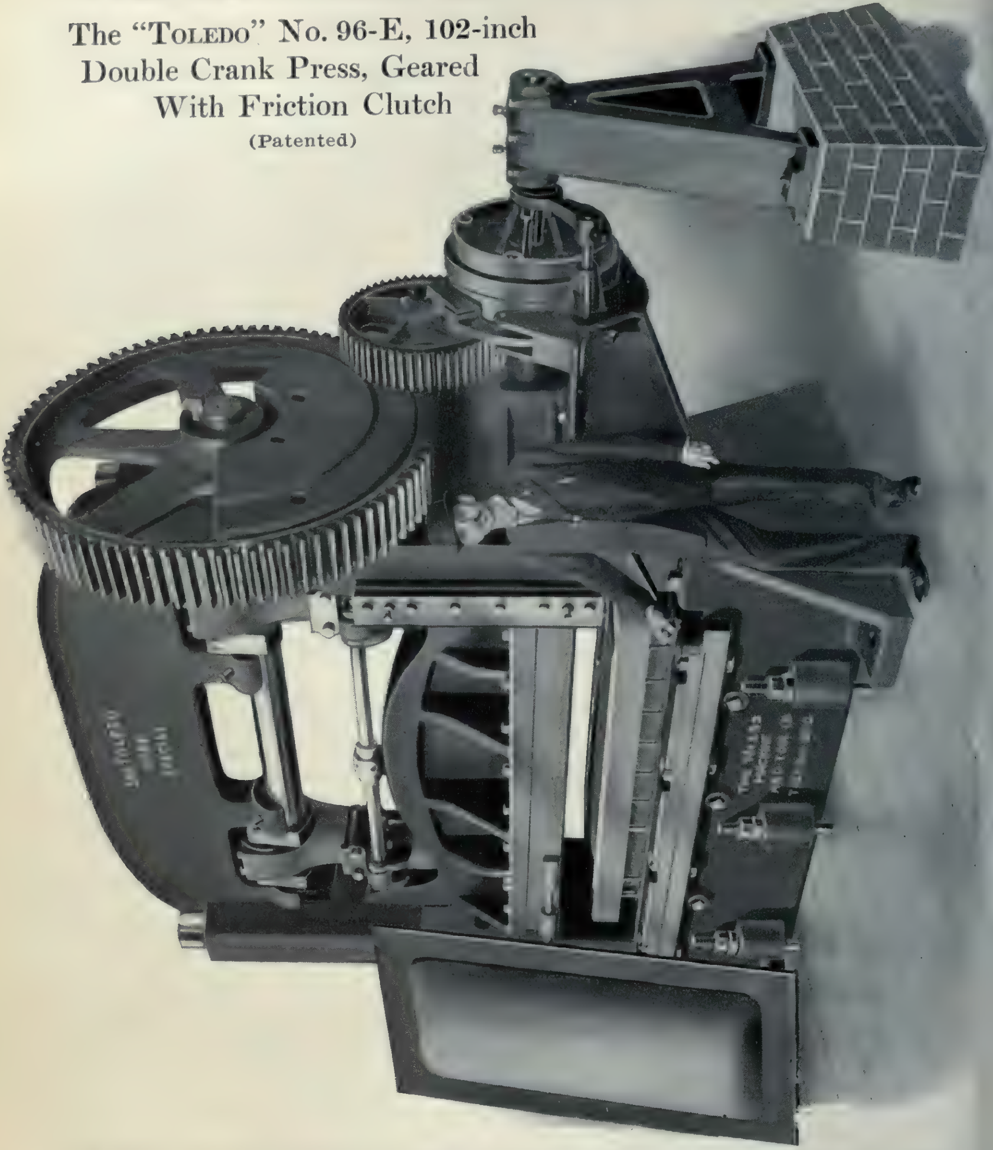
The auxiliary bed, as shown in illustration, is used only for blanking and shallow forming work. This auxiliary bed can be removed and the dies mounted directly on the sub-bed for deep forming work, the long stroke and high die space adapting this Press to the heaviest and largest automobile work, comprising such parts as one-piece body side panels, one-piece seats, seamless engine pans, etc.

Total weight about 120,000 lbs. Weight of Auxiliary Bed about 25,000 lbs.

General description, page 237. Dimensions, page 270. Code Word............

The "Toledo" No. 96-E, 102-inch Double Crank Press, Geared With Friction Clutch

(Patented)

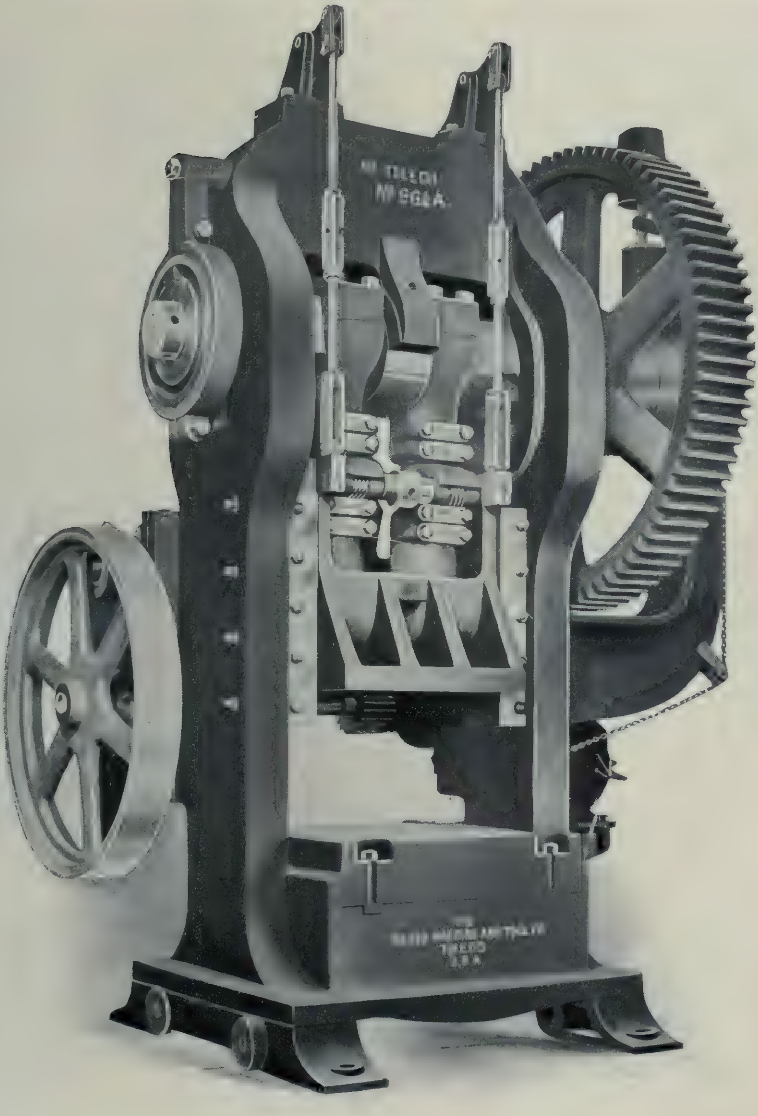


THE illustration shows a Press and dies fitted for making covers of heavy plate for steel burial vaults. This Press is fitted with our new patented friction clutch with hand lever control and is specially suited for operating large dies for deep stamping for burial vaults, voting booths, automobile bodies and parts, and other large steel stampings of a similar nature. The operator is able to adjust the drawing attachment by means of adjusting nuts shown on the front of the machine, and others in similar position in the rear which are above the floor. The dies shown are also made adjustable for smaller sizes and without removing either the upper or lower die from the machine. Total weight about 78,000 lbs.

General description, page 237. Dimensions, page 270. Code Word..........

The "Toledo" No. 96½-A, 48-inch Double Crank Press, Geared

(Patented)



THIS Press is a new size, with unusually long stroke, for deep stamped hot or cold work. It is adapted to cutting, drawing and forming pipe flanges or collars, packing rings used for oil pipe, and similar work.

Built in a variety of widths with stroke or slide motion to suit any special work within the capacity of the Press.

A direct connected motor is applied to Press as shown in illustration. Total weight about 71,000 lbs.

General description, page 237. Dimensions, page 270. Code Word............

The "Toledo" Double Crank Blanking, Forming and Embossing Presses With "Toledo" Friction Clutches

Number of Press Page of Catalogue	97-A 277	97-B	97-C	97-D	97-E 278	97-F	97-G ....
DOUBLE GEARED PRESS							
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	85000	95000	106000	125000	140000	160000	175000
*Area of slide flange, F. to B., R. to L. ... inches	36 x 52	36 x 64	42 x 76	42 x 94	42 x 116	42 x 140	42 x 160
*Area of bed, F. to B., R. to L. ... inches	48 x 60	48 x 72	58 x 84	58 x 102	58 x 124	58 x 148	58 x 168
*Opening in bed, F. to B., R. to L. ... inches	30x 54	30 x 66	34 x 78	34 x 94	34 x 118	34 x 142	34 x 162
Width between housings ... inches	61	73	85	103	125	149	169
*Standard Stroke of slide ... inches	5	5	5	5	5	5	5
Maximum stroke of slide ... inches	18	18	18	24	24	24	24
Adjustment of slide ... inches	4	4	4	4	4	4	4
*Distance bed to slide, stroke and adjustment up ... inches	28	28	28	32	32	32	32
Thickness of bolster plate ... inches	4½	4½	4½	4½	4½	4½	4½
Diameter of main gear ... inches	86	86	86	86	86	86	86
Proportion of gearing	40:1	40:1	40:1	40:1	40:1	40:1	40:1
Size of balance wheel ... inches	61 x 8	61 x 8	61 x 8	61 x 8	61 x 8	61 x 8	61 x 8
Weight of balance wheel ... pounds	2500	2500	2500	2500	2500	2500	2500
Size of belt wheel ... inches	38 x 8	38 x 8	38 x 8	38 x 8	38 x 8	38 x 8	38 x 8
Speed of belt wheel ... R. P. M.	325	325	325	325	325	325	325
Strokes of slide per minute	8	8	8	8	8	8	8
Distance floor to center of shaft ... inches	120	120	120	120	120	120	120
Floor space over all, F. to B., R. to L. ... inches	104x198	104x210	112x222	112x240	112x262	112x286	112x306
Floor space of base, F. to B., R. to L. ... inches	75x158	75x170	85x182	85x200	85x222	85x246	85x266

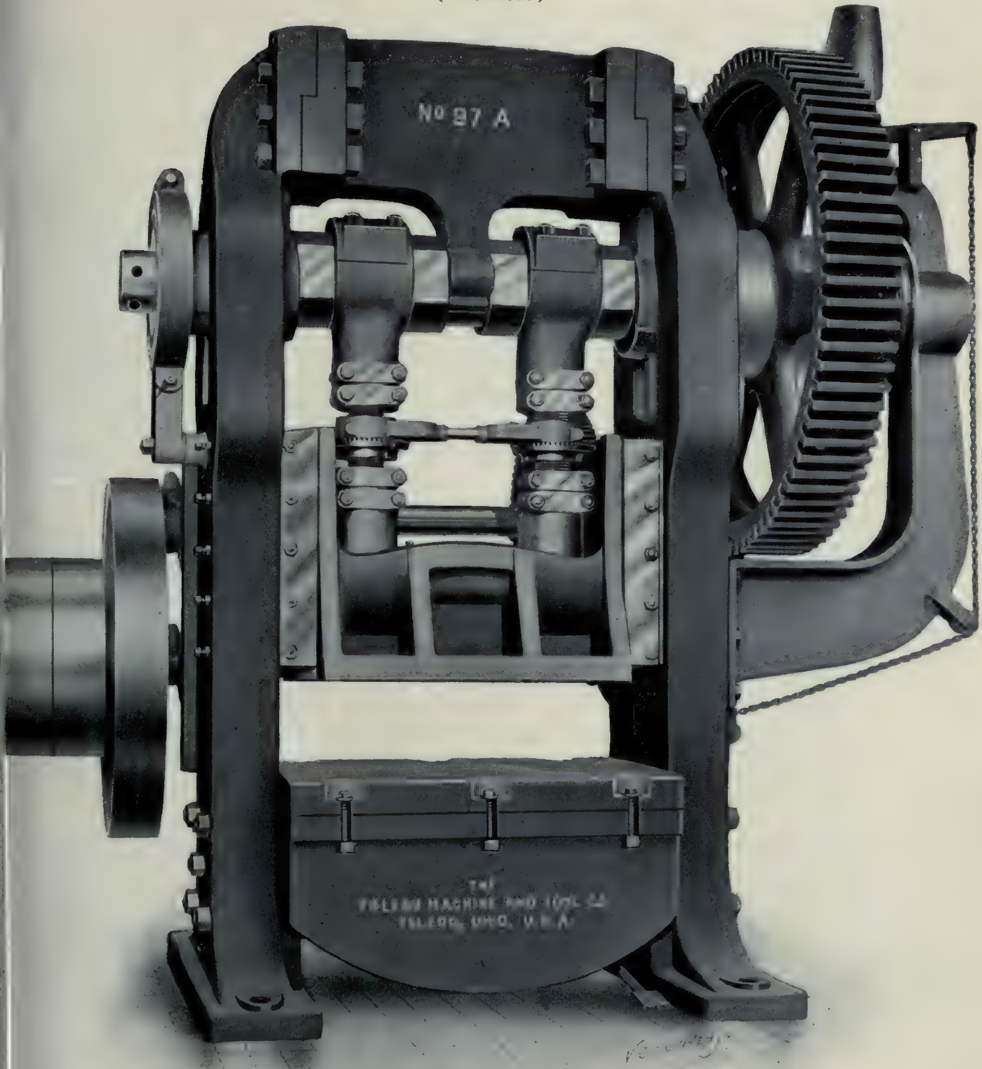
Twin Geared (97-D to 97-G)

Tie-rod construction (97-A to 97-G)

*These can be changed.

The "Toledo" No. 97-A, 60-inch Double Crank Press, Geared

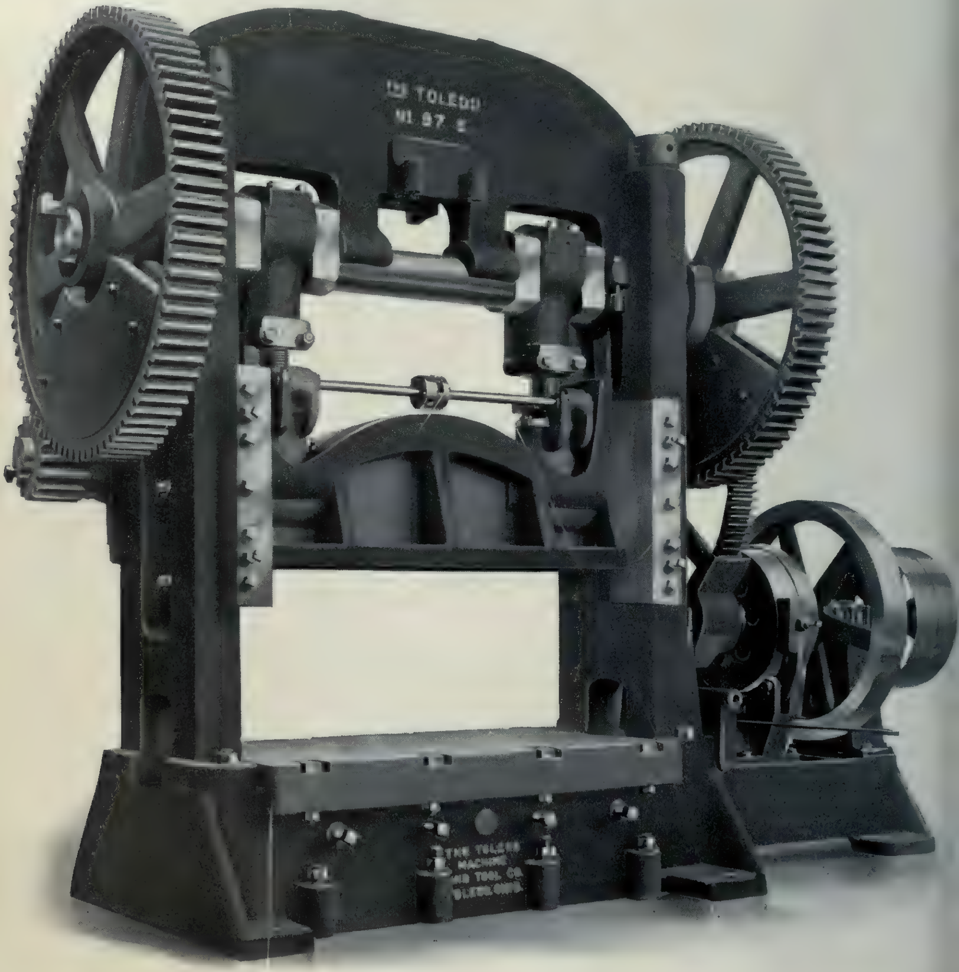
(Patented)



THIS Press is furnished single or double geared as desired. The double geared type shown is of powerful four-pieced frame construction. This size Press is specially adapted to heavy cutting, gang perforating and forming. It is used in the manufacture of all classes of light or heavy stamped steel parts, such as armature segments, steel wheels, floor registers and steel stampings for heater parts, automobile frames and a variety of other work. Weight of Press as shown, about 85,000 lbs.

General description, page 237. Dimensions, page 276
Code Word as shown complete............

The "Toledo" No. 97-E, 124-inch Double Crank Press Double Geared, with Twin Geared Drive



THIS Press is similar in construction to the No. 96-G Press illustrated and described on page 273, but proportionately larger and more massive throughout and having a much greater capacity. This Press has a capacity for blanking, forming and trimming lock-seamed corrugated steel culverts, barn door hanger runways, automobile chassis frames, panels and similar heavy pressed steel work. Total weight about 140,000 lbs.

General description, page 237. Dimensions, page 276. Code Word...........

The "Toledo" Double Crank Blanking, Forming and Embossing Presses

With "Toledo" Friction Clutches and Steel-Tied Frame Construction

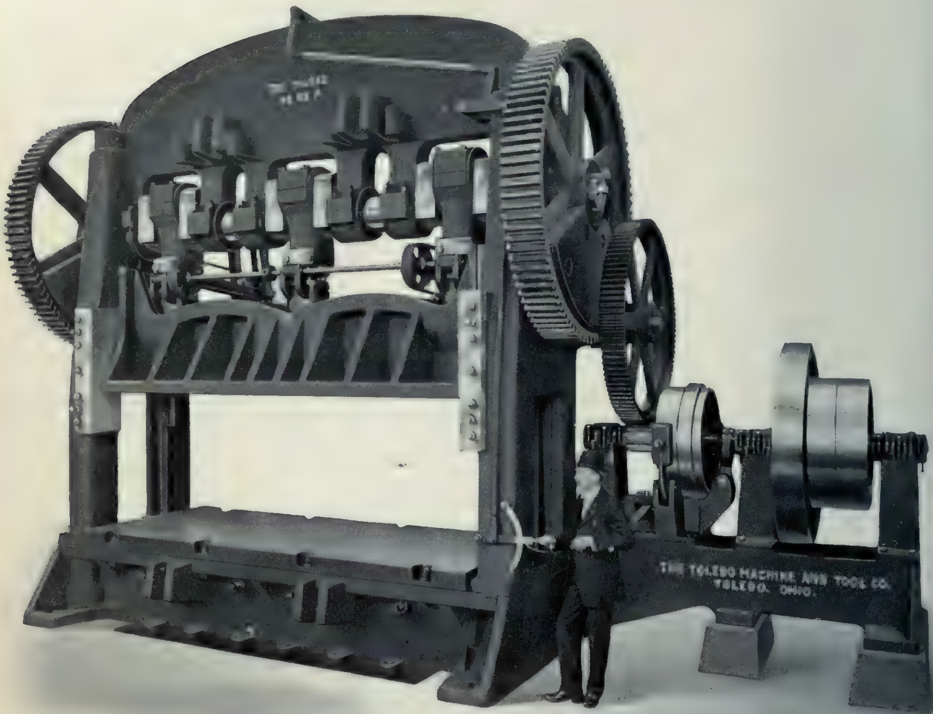
The series of presses embracing our Nos. 98, 98½, 99, 99½ and 99¾ in the different widths specified are designed for the heaviest blanking, perforating, forming and embossing operations on very large sheets of heavy gauge-metal, for such parts as auto truck chassis frames, steel car doors, siding and roofing, steel safes and vaults and similar heavy work.

We can furnish any of these Presses with any width between the housings, bed area, stroke, die space or other dimensions desired, also fitted with knockout in slide, drawing or spring pressure attachment, or any other special features or attachments required.

Number of Press................. Page of Catalogue...............	98-A	98-B	98-C	98-D	98-E 280	98½-A	98½-B	98½-C	98½-D	98½-E
DOUBLE GEARED PRESS										
Price including bolster plate.......	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate........	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ....pounds	122000	150000	182000	215000	250000	130000	159000	194000	230000	270000
*Area of slide flange, F. to B., R. to L................inches	44 x 64	50 x 88	50x112	50x136	50x160	45 x 62	55 x 86	55x110	55x134	55x158
*Area of bed, F. to B., R. to L. inches	60 x 72	65 x 96	65x120	65x144	65x168	60 x 72	70 x 96	70x120	70x144	70x168
*Opening in bed, F. to B., R. to L. in	32 x 66	36 x 90	36x114	36x138	36x162	35 x 66	40 x 90	40x114	40x138	40x162
Width between housings....inches	73	97	121	145	169	73	97	121	145	169
*Standard stroke of slide....inches	6	6	6	6	6	5	5	5	5	5
Maximum stroke of slide....inches	26	26	26	26	26	26	26	26	26	26
Adjustment of slide........inches	6	6	6	6	6	6	6	6	6	6
*Distance bed to slide, stroke and adjustment up......inches	36	36	36	36	36	38	38	38	38	38
Thickness of bolster plate...inches	4½	4½	4½	4½	4½	6	6	6	6	6
Diameter of main gear......inches	98	98	98	98	98	98	98	98	98	98
Proportion of gearing, about......	46:1	46:1	46:1	46:1	46:1	46:1	46:1	46:1	46:1	46:1
Size of balance wheel.......inches	66 x 8	66 x 8	66 x 8	66 x 8	66 x 8	72 x 8	72 x 8	72 x 8	72 x 8	72 x 8
Weight of balance wheel...pounds	3500	3500	3500	3500	3500	3800	3800	3800	3800	3800
Size of belt wheel..........inches	42 x 8	42 x 8	42 x 8	42 x 8	42 x 8	42 x 10	42 x 10	42 x 10	42 x 10	42 x 10
Speed of belt wheel.......R. P. M.	325	325	325	325	325	325	325	325	325	325
Strokes of slide per minute.......	7	7	7	7	7	7	7	7	7	7
Distance floor to center of shaft..in.	136	136	136	136	136	150	150	150	150	150
Floor space over all, F. to B., R. to L. ....inches	117x229	122x253	122x277	122x301	122x325	130x239	130x263	130x287	130x311	130x335
Floor space of base, F. to B., R. to L. ....inches	115x209	120x233	120x257	120x281	120x305	120x209	125x233	125x257	125x281	125x305

*These can be changed.

The "Toledo" No. 98-F, 169-inch Triple Crank Press Double Geared



PRESS here illustrated is one of our latest triple crank, double or triple back geared, as desired, and with twin gears on crank shaft. Frame construction is with steel tie rods running through housings, with provision for two additional tie rods front and rear, when desired. Opening through each housing is provided for in strip or bar work. In addition to hand power adjustment, slide is fitted with power elevating attachment, a quick convenience for adjustment to suit dies. Press is adapted to all classes of blanking, shearing, perforating, drawing and forming on steel bodies, automobile frames, steel vestibule doors and berth panels in steel Pullman coaches, etc. Weight about 300,000 lbs.

General description, page 237. Dimensions, page 279. Code Word...........

The "TOLEDO" Double Crank Blanking, Forming and Embossing Presses With "TOLEDO" Friction Clutches

Number of Press	99-A	99-B	99-C	99-D	99-E	99½-A	99½-B	99½-C	99½-D
Page of Catalogue	....	....	....	....	....	....	....	....	....
DOUBLE GEARED PRESS									
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	180000	210000	240000	270000	300000	305000	318000	335000	360000
*Area of slide flange, F. to B., R. to L. ... inches	50 x 60	60 x 84	60x108	60x132	60x156	64 x 83	64x107	64x131	64x155
*Area of bed, F. to B., R. to L. ... inches	65 x 72	75 x 96	75x120	75x144	75x168	80 x 96	80x120	80x144	80x168
*Opening in bed, F. to B., R. to L. ... inches	36 x 66	44 x 90	44x114	44x138	44x162	48 x 90	48x114	48x138	48x162
Width between housings ... inches	73	97	121	145	169	97	121	145	169
*Standard stroke of slide ... inches	8	8	8	8	8	10	10	10	10
Maximum stroke of slide ... inches	30	30	30	30	30	36	36	36	36
Adjustment of slide ... inches	6	6	6	6	6	6	6	6	6
*Distance bed to slide, stroke and adj. up ... inches	42	42	42	42	42	48	48	48	48
Thickness of bolster plate ... inches	6	6	6	6	6	7	7	7	7
Diameter of main gear ... inches	110	110	110	110	110	124	124	124	124
Proportion of gearing, about	50:1	50:1	50:1	50:1	50:1	52:1	52:1	52:1	52:1
Size of balance wheel ... inches	78 x 8	78 x 8	78 x 8	78 x 8	78 x 8	78 x 10	78 x 10	78 x 10	78 x 10
Weight of balance wheel ... pounds	4200	4200	4200	4200	4200	4500	4500	4500	4500
Size of belt wheel ... inches	50 x 12	50 x 12	50 x 12	50 x 12	50 x 12	60 x 12	60 x 12	60 x 12	60 x 12
Speed of belt wheel ... R. P. M.	300	300	300	300	300	290	290	290	290
Strokes of slide per minute	6	6	6	6	6	5½	5½	5½	5½
Distance floor to center of shaft ... inches	170	170	170	170	170	182	182	182	182
Floor space over all, F. to B., R. to L. ... inches	142x254	142x278	142x302	142x326	142x350	150x288	150x312	150x336	150x360
Floor space of base, F. to B., R. to L. ... inches	130x214	135x238	135x262	135x286	135x310	140x238	140x262	140x286	140x310

Tie rod construction
Twin geared

*These can be changed.

The "Toledo" Double Crank Blanking and Embossing Presses, with "Toledo" Friction Clutches

Number of Press		99¾-A	99¾-B	99¾-C	99¾-D
Page of Catalogue					
DOUBLE GEARED PRESS					
Price including bolster plate		$......	$......	$......	$......
Price of extra bolster plate		$......	$......	$......	$......
Weight, about	pounds	315,000	332000	355000	390000
*Area of slide flange, F. to B., R. to L.	inches	66 x 83	66 x 107	66 x 131	66 x 155
*Area of bed, F. to B., R. to L.	inches	85 x 96	85 x 120	85 x 144	85 x 168
*Opening in bed, F. to B., R. to L.	inches	52 x 90	52 x 114	52 x 138	52 x 162
Width between housings	inches	97	121	145	169
*Standard stroke of slide	inches	10	10	10	10
Maximum stroke of slide	inches	36	36	36	36
Adjustment of slide	inches	6	6	6	6
*Distance bed to slide, stroke and adjustment up	inches	48	48	48	48
Thickness of bolster plate	inches	7	7	7	7
Diameter of main gear	inches	124	124	124	124
Proportion of gearing, about		55:1	55:1	55:1	55:1
Size of balance wheel	inches	80 x 10	80 x 10	80 x 10	80 x 10
Weight of balance wheel	pounds	5000	5000	5000	5000
Size of belt wheel	inches	60 x 14	60 x 14	60 x 14	60 x 14
Speed of belt wheel	R. P. M.	275	275	275	275
Strokes of slide per minute		5	5	5	5
Distance floor to center of shaft	inches	185	185	185	185
Floor space over all, F. to B., R. to L.	inches	154 x 290	154 x 314	154 x 338	154 x 362
Floor space of base, F. to B., R. to L.	inches	145 x 240	145 x 264	145 x 288	145 x 312

Tie rod construction
Twin Geared

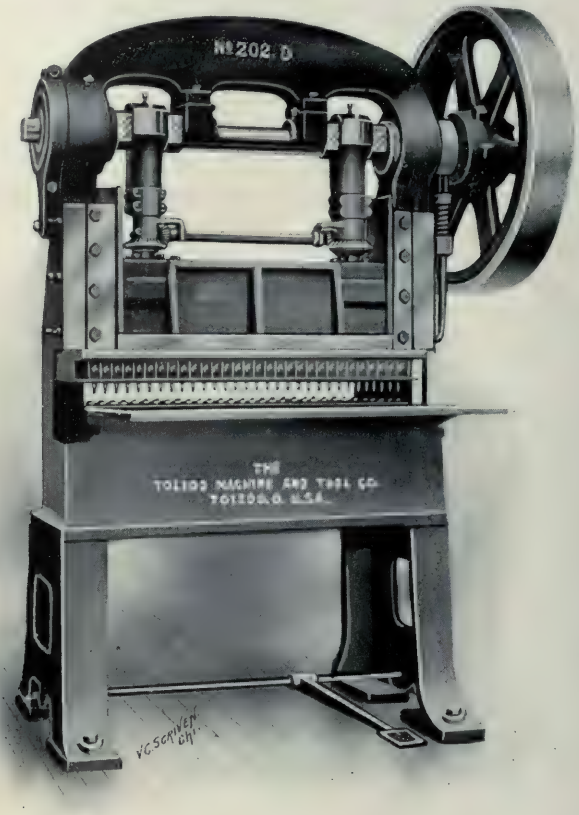
* These can be changed.

The "Toledo" Double Crank Multiple Punching, Shearing and Forming Presses

Number of Press		202-A	202-B	202-C	202-D	202-C Special
Old Number						
Page of Catalogue			285		284	286
PLAIN PRESS	Code Word					
Price including bolster plate		$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate		$.....	$.....	$.....	$.....	$.....
Price with removable front		$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	4300	4600	4900	5200	7800
*Area of slide flange. F. to B., R. to L.	inches	10 x 18	10 x 22	10 x 26	10 x 30	18 x 29½
*Area of bed and bolster plate, F. to B., R. to L.	inches	11½ x 31	11½ x 35	11½ x 39	11½ x 45	31 x 43
*Opening in bed, F. to B., R. to L.	inches	3 x 24	3 x 28	3 x 32	3 x 36	23 x 36
Distance back from center of slide	inches	4	4	4	4	12½
Distance between uprights	inches	24	28	32	36	36
*Standard stroke of slide	inches	1¾	1¾	1¾	1¾	1¾
Adjustment of slide	inches	2	2	2	2	2
*Standard distance bed to slide, stroke and adjustment up	inches	10	10	10	10	10
Thickness of bolster plate	inches	2	2	2	2	2
Diameter and face of flywheel	inches	34 x 5½	34 x 5½	34 x 5½	34 x 5½	34 x 5½
Weight of flywheel	pounds	650	650	650	650	650
Speed of flywheel	R. P. M.	100	100	100	100	100
Distance floor to center of shaft	inches	68	68	68	68	68
Floor space over all, F. to B., R. to L.	inches	44 x 52	44 x 56	44 x 60	44 x 64	64 x 64
Floor space of base, F. to B., R. to L.	inches	38 x 34	38 x 38	38 x 42	38 x 46	64 x 46
GEARED PRESS	Code Word					
Price		$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	4900	5200	5500	5800	8400
Proportion of gearing		6:1	6:1	6:1	6:1	6:1
Diameter of gear	inches	32	32	32	32	32
Size of balance wheel	inches	30 x 5	30 x 5	30 x 5	30 x 5	30 x 5
Weight of balance wheel	pounds	400	400	400	400	400
Size of belt wheel	inches	18 x 4	18 x 4	18 x 4	18 x 4	18 x 4
Speed of belt wheel	R. P. M.	300	300	300	300	300
Strokes of slide per minute		50	50	50	50	50
Floor space over all, F. to B., R. to L.	inches	48 x 65	48 x 70	48 x 74	48 x 78	64 x 78

* Can be changed.

The "Toledo" No. 202-D, 36-inch Double Crank Press

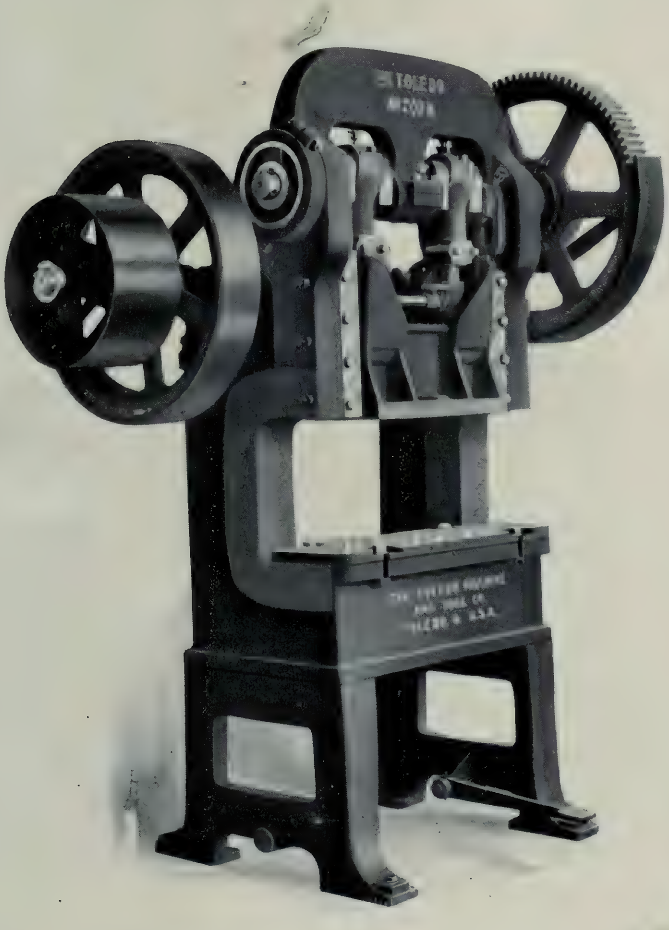

Nº 202 D
THE
TOLEDO MACHINE AND TOOL CO.
TOLEDO, O. U.S.A.
V.G. SCRIVEN CHI.

THIS illustration shows the general design and appearance of the smaller sizes of our Double Crank Overhanging Perforating Presses. These Presses are designed for punching one or more rows of holes at one stroke.

Built for light work, to punch any size or number of holes, single, double, or in groups, and with dies and punches stationary or adjustable for punching holes at equal or unequal intervals. *When desired, full equipments of strippers* and *adjustable gauges are provided,* and with this equipment dies and punches may be separately adjusted, and easily and quickly replaced. Automatic double roll feed may be used in connection with this size Press in a similar manner to that shown on page 303, on Press No. 206-B. These rolls may be provided with a side motion for shifting the stock sideways for perforating staggering patterns. Total weight about 5,200 lbs.

General description, page 237. Dimensions, page 283.
Code Word exclusive of holders and dies...........

The "Toledo" No. 202-B, 28-inch Double Crank Press, Geared

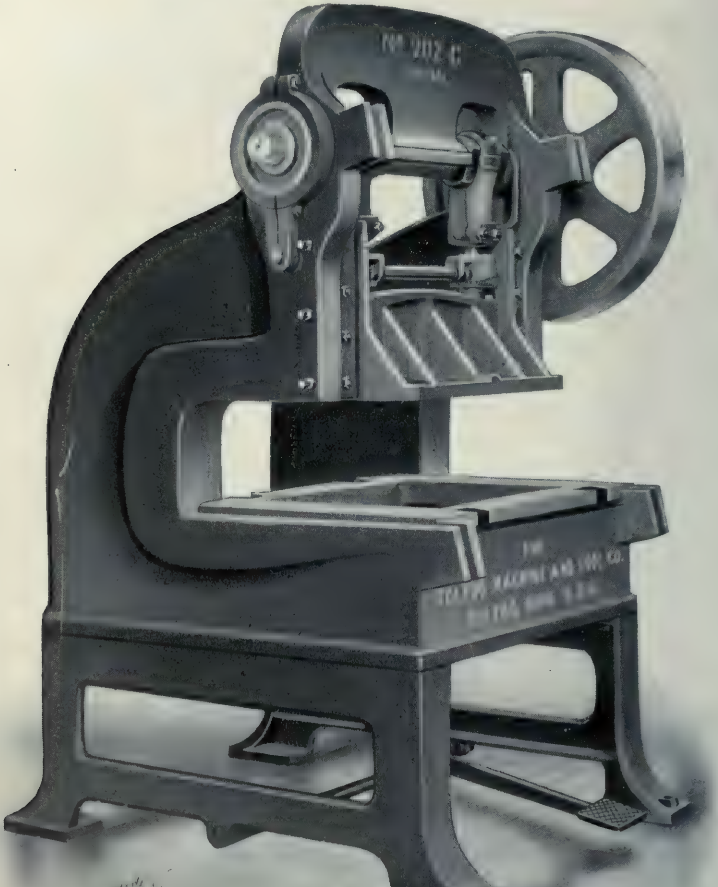


THE high die space and long stroke on this Press adapt it to forming special shapes of bar iron for baby carriages, wheelbarrows and implement work of the medium and smaller sizes.

Also suited for blanking, shearing and perforating, with multiple gang or group dies. Total weight about 5,200 lbs.

General description, page 237. Dimensions, page 283. Code Word.......... .

The "Toledo" No. 202-C, 36-inch Double Crank Press Deep Gap



THIS Double Crank Deep Gap Plain Press is designed specially for operating large blanking dies used by manufacturers of pieced tin and stamped ware for cutting body blanks for pails, tubs and similar work. The slide bearings are unusually long and very deep front to back, giving the greatest support possible for cutting punches. The frame is heavy enough to successfully withstand the maximum work within the capacity of the machine without the use of tie rods, although provision for tie rods is made to permit using the machine for a heavier class of shearing and forming, if desired. Total weight about 7,800.

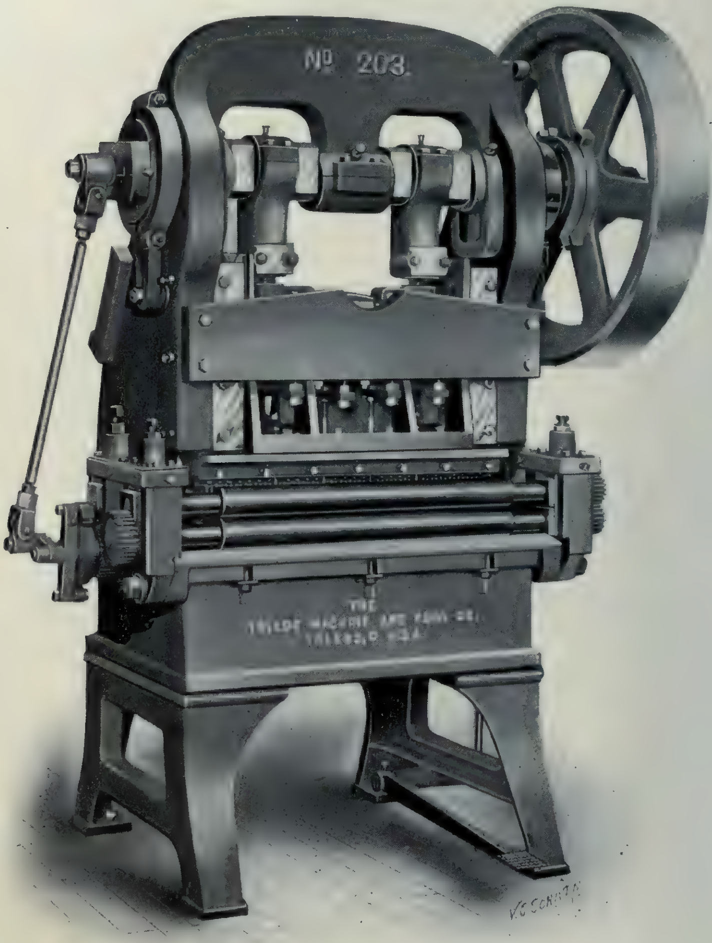
General description, page 237. Dimensions, page 283. Code Word..........

The "TOLEDO" Double Crank Multiple Punching, Shearing and Forming Presses

Number of Press Page of Catalogue		203-A	203-B 288	203-C	203-D 289	203-D Special	203-E
PLAIN PRESS							
Price, including bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price of extra bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price with removable front		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	5700	5900	6150	6475	9900	6850
*Area of slide flange, F. to B., R. to L.	inches	10 x 21	10 x 25	10 x 29	10 x 35	14 x 40	10 x 41
*Area of bed and bolster, F. to B., R. to L.	inches	13 x 36	13 x 39½	13 x 43½	13 x 49½	24 x 49½	13 x 55½
*Opening in bed, F. to B., R. to L.	inches	4 x 28	4 x 32	4 x 36	4 x42	14 x 42	4 x 48
Distance back from center of slide	inches	5½	5½	5½	5½	14	5½
Distance between uprights	inches	28	32	36	42	42	48
*Standard stroke of slide	inches	2	2	2	2	2	2
Adjustment of slide	inches	2	2	2	2	2	2
*Distance bed to slide, stroke and adjustment up	inches	11	11	11	11	11	11
Thickness of bolster plate	inches	2	2	2	2	2	2
Diameter and face of flywheel	inches	36 x 5½	36 x 5½	36 x 5½	36 x 5½	36 x 5½	36 x 5½
Weight of flywheel	pounds	775	775	775	775	775	775
Speed of flywheel	R. P. M.	90	90	90	90	90	90
Distance floor to center of shaft	inches	72	72	72	72	74	72
Floor space over all, F. to B., R. to L.	inches	48 x 58	48 x 62	48 x 66	48 x 72	63 x 72	48 x 78
Floor space of base, F. to B., R. to L.	inches	42 x 38	42 x 40	42 x 44	42 x 50	63 x 54	42 x 56
GEARED PRESS							
Price		$.....	$.....	$.....	$.....	$.....	....
Weight, about	pounds	6400	6600	6850	7175	10500	7550
Proportion of gearing, about		6½:1	6½:1	6½:1	6½:1	6½:1	6½:1
Diameter of gear	inches	35	35	35	35	35	35
Size of balance wheel	inches	34 x 5½	34 x 5½	34 x 5½	34 x 5½	34 x 5½	34 x 5½
Weight of balance wheel	pounds	600	600	600	600	600	600
Size of belt wheel	inches	20 x 5	20 x 5	20 x 5	20 x 5	20 x 5	20 x 5
Speed of belt wheel	R. P. M.	300	300	300	300	300	300
Strokes of slide per minute		45	45	45	45	45	45
Floor space over all, F. to B., R. to L.	inches	54 x 75	54 x 79	54 x 83	54 x 89	63 x 89	54 x 95

* These can be changed.

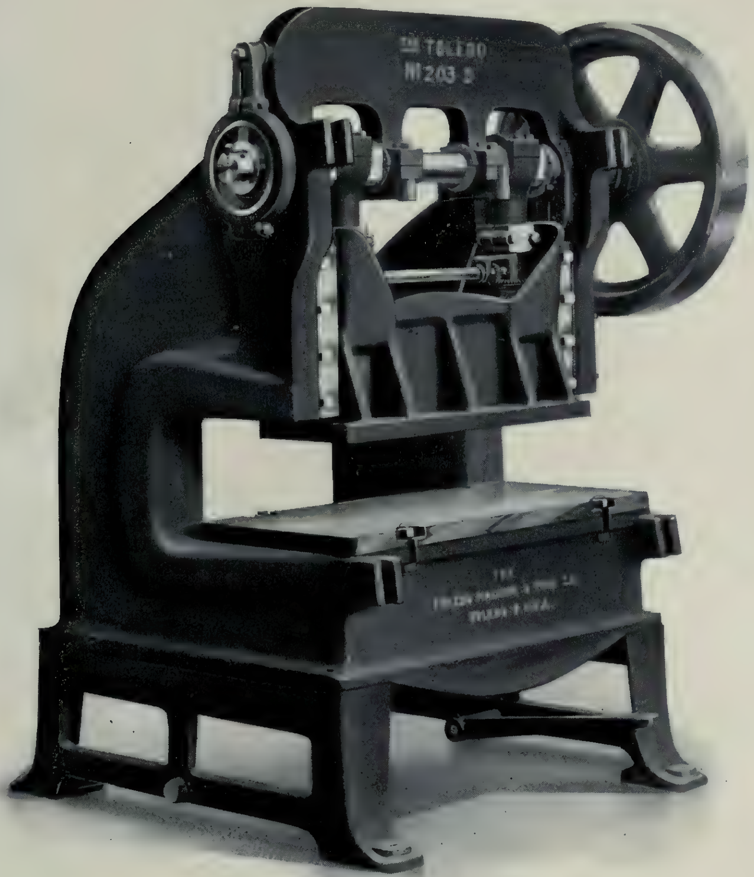
The "Toledo" No. 203-B, 32-inch Double Crank Press Double Roll Feed



FITTED with double roll feeding attachment, and with automatic positive stripping device in the slide, this Press is adapted to perforating 30-inch sheets of light steel, tin, zinc, brass, copper and other metals which may be used for a variety of purposes. The front rolls may be disengaged and dropped out of position, giving free access to the dies, without the necessity of readjusting the rolls. Total weight about 5,900 lbs.

General description, page 237. Dimensions, page 287. Code Word...........

The "Toledo" No. 203-D, 42-inch Double Crank Press



THIS style and type of Press, with deep throat, large bed area and bed opening, is made in several sizes for cutting large blanks for pieced tinware, metal furniture, fender aprons and a variety of similar work in the lighter gauges of metal. Total weight about 6,500 lbs.

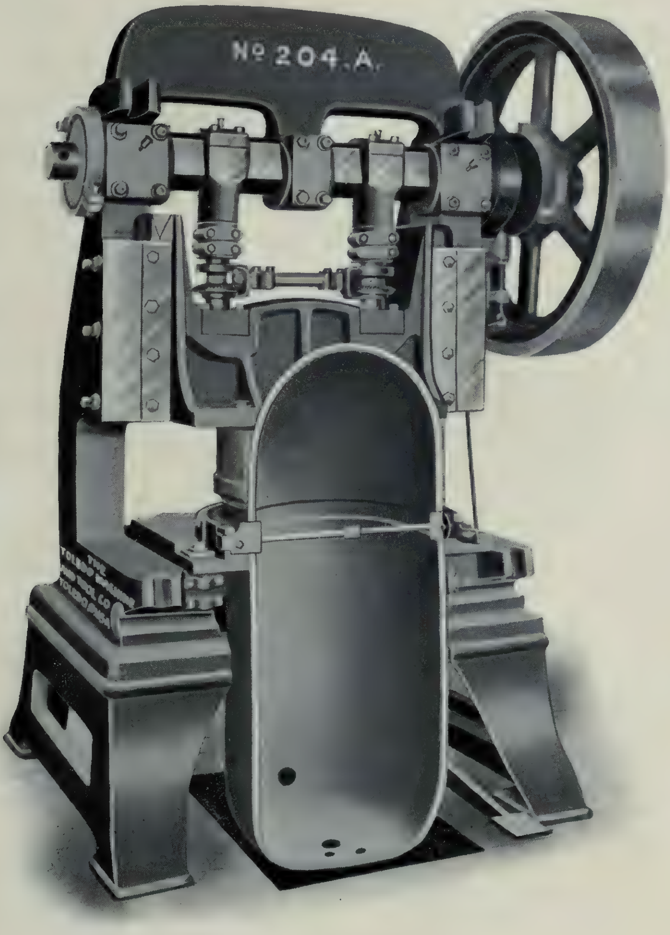
General description, page 237. Dimensions, page 287. Code Word............

The "Toledo" Double Crank Multiple Punching, Shearing and Forming Presses

Number of Press		204-A	204 Sp.	204-B	204-C	204-D	204-E
Old Number		....	....	....	....	....	....
Page of Catalogue		291	294	292	....	....	293
PLAIN PRESS							
Code Word							
Price including bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price with removable front		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	8400	11800	8600	9200	9800	12100
*Area of slide flange, F. to B., R. to L.	inches	12 x 24	22 x 24	12 x 28	12 x 34	12 x 40	12 x 52
*Area of bed and bolster plate, F. to B., R. to L.	inches	15 x 42	31 x 41	15 x 46	15 x 52	15 x 58	15 x 70
*Opening in bed, F. to B., R. to L.	inches	5 x 32	15 x 33	5 x 36	5 x 42	5 x 48	5 x 60
Distance back from center of slide	inches	6	12½	6	6	6	6
Distance between uprights	inches	32	32	36	42	48	60
*Standard stroke of slide	inches	2½	2½	2½	2½	2½	2½
Adjustment of slide	inches	2½	2½	2½	2½	2½	2½
*Standard distance bed to slide, stroke and adjustment up	inches	12	12	12	12	12	12
Thickness of bolster plate	inches	2¼	2¼	2¼	2¼	2¼	2¼
Diameter and face of flywheel	inches	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½
Weight of flywheel	pounds	1050	1050	1050	1050	1050	1050
Speed of flywheel	R. P. M.	80	80	80	80	80	80
Distance floor to center of shaft	inches	74	74	74	74	74	74
Floor space over all, F. to B., R. to L.	inches	53 x 64	67 x 64	53 x 64	53 x 74	53 x 80	53 x 92
Floor space of base, F. to B., R. to L.	inches	48 x 46	67 x 46	48 x 50	48 x 56	48 x 62	48 x 74
GEARED PRESS							
Code Word							
Price		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	9500	13000	9850	10400	11000	13400
Proportion of gearing		6½:1	6½:1	6½:1	6½:1	6½:1	6½:1
Diameter of gear	inches	42	42	42	42	42	42
Size of balance wheel	inches	38 x 6	38 x 6	38 x 6	38 x 6	38 x 6	38 x 6
Weight of balance wheel	pounds	800	800	800	800	800	800
Size of belt wheel	inches	24 x 5	24 x 5	24 x 5	24 x 5	24 x 5	24 x 5
Speed of belt wheel	R. P. M.	300	300	300	300	300	300
Stroke of slide per minute		45	45	45	45	45	45
Floor space over all, F. to B., R. to L.	inches	62 x 88	67 x 88	62 x 92	62 x 98	62 x 104	62 x 116

* These can be changed.

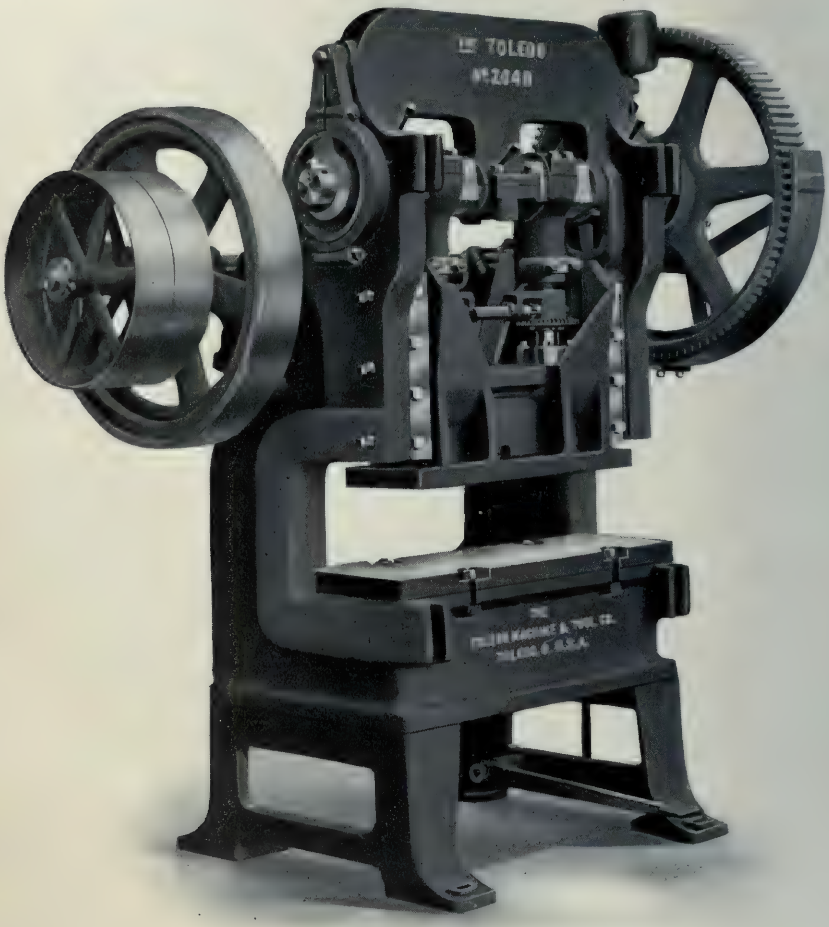
The "Toledo No. 204-A, 32-inch Double Crank Press With Removable Front



As shown above, Press is fitted with special fixtures used in the manufacture of three-pieced stamped steel bath tubs. Work of this character, as well as a large variety of other work, can be taken in from the flat, and sheared or blanked, formed, stamped, and clinched together as shown. Total weight about 8,400 lbs.

General description, page 237. Dimensions, page 290
Code Word for Press with removable front, no dies...........

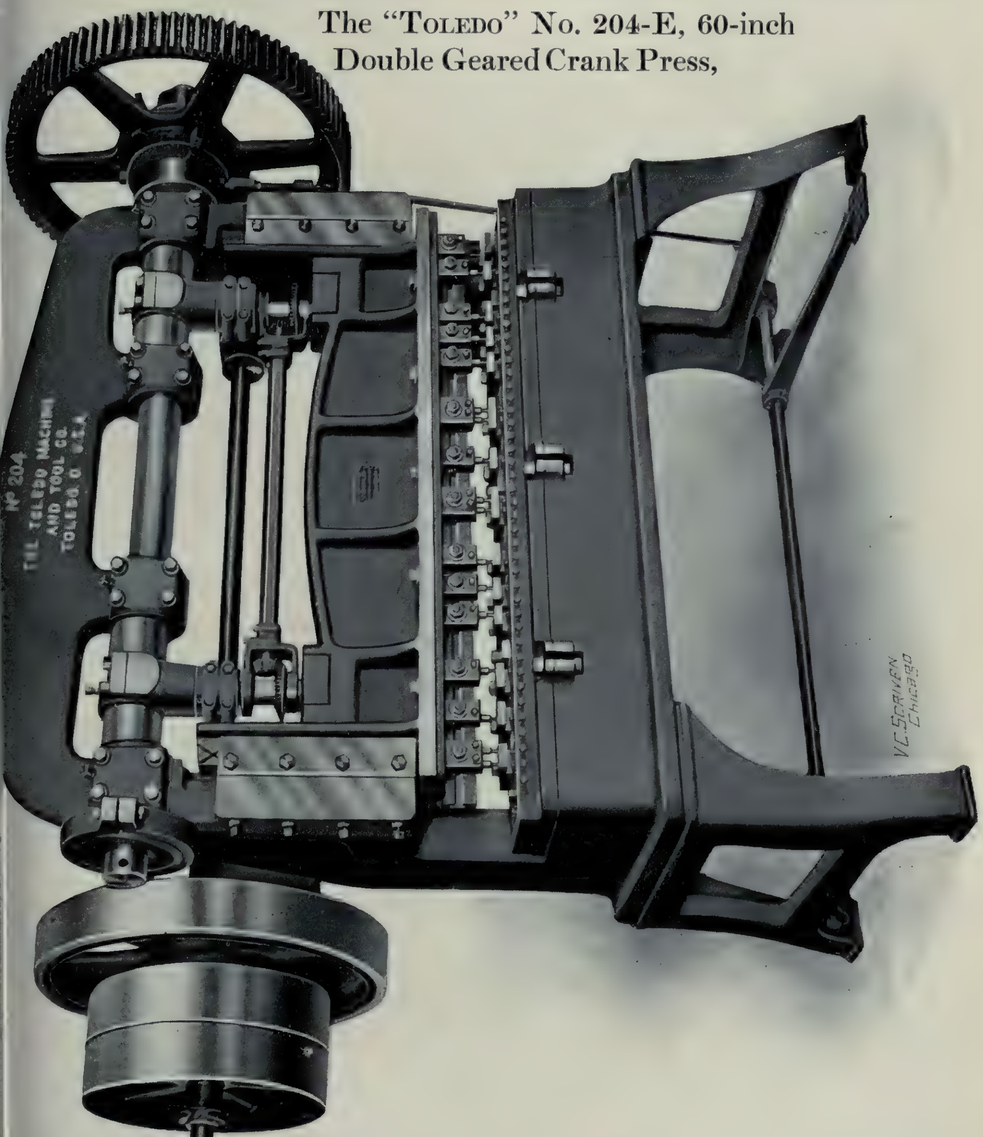
The "Toledo" No. 204-B, 36-inch Double Crank Press, Geared



THE above Press is designed and used for stamping sheet metal box frames of from 18 to 20-gauge metal; it is also adapted to perforating and riveting on wire mattresses, metal bed frames, agricultural implements, etc. Total weight about 10,000 lbs.

General description, page 237. Dimensions, page 290. Code Word...........

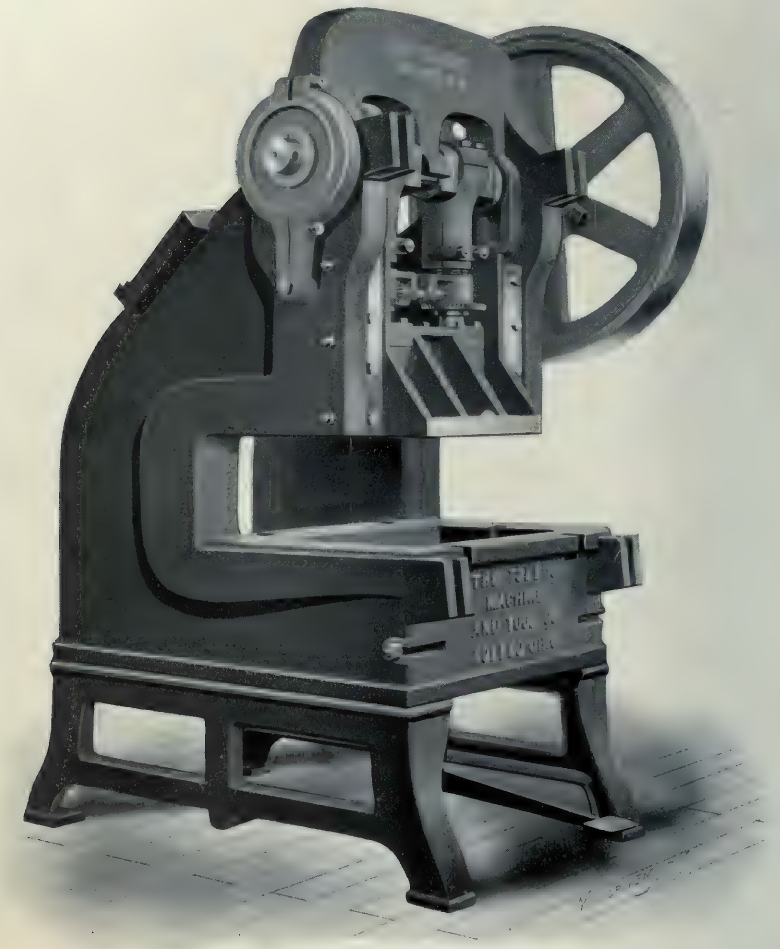
The "Toledo" No. 204-E, 60-inch Double Geared Crank Press,



THIS illustration, while showing the old type of frame, is used to show the upper and lower holders and adjustable feature only, for gang perforating and riveting dies, such as are required for manufacturing wire mattresses, metal bed frames, etc. The punches and dies are independently adjustable or removable, and are fitted with standard strippers and gauges. Our present standard No. 204 Presses are of our new type of construction as illustrated on preceding and following pages. Total weight about 13,400 lbs.

General description, page 237. Dimensions, page 290
Code Word for Press, exclusive of holders and dies............

The "Toledo" No. 204-A, 32-inch Double Crank Press
Deep Gap

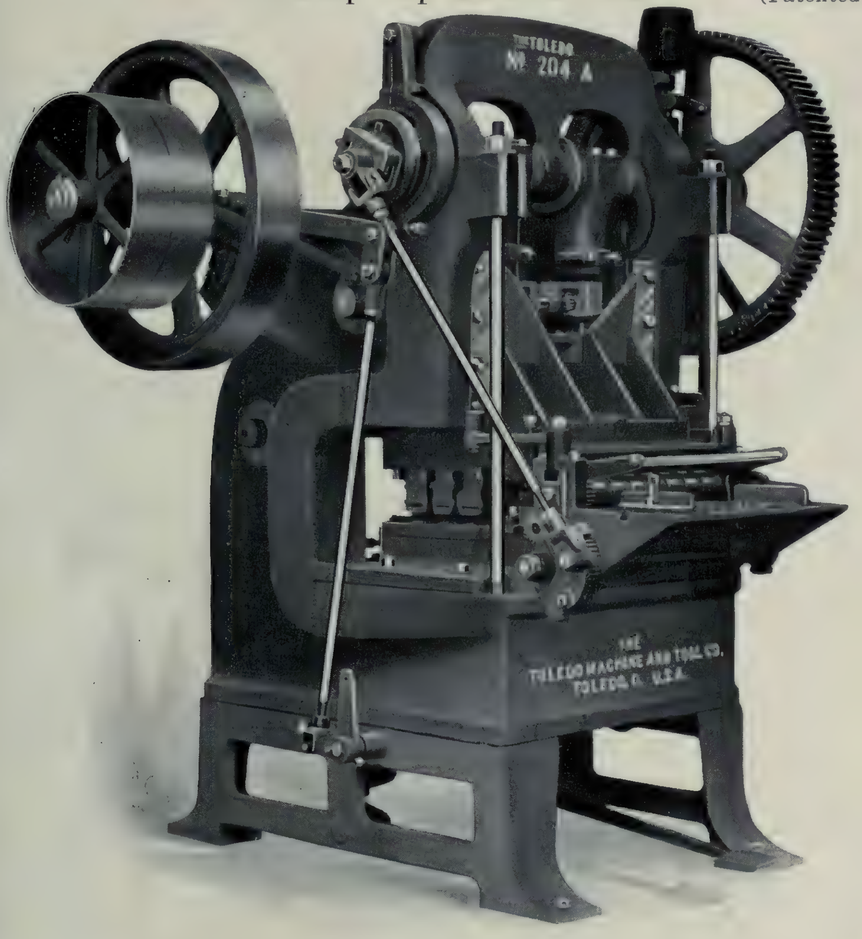


THE front of this Press is made removable so that speical bed plates, horns and other tools may be attached for performing, clinching, seaming and embossing operations on heavy work, where it is necessary to have the work directly under slide center, such as square metal packages, bottle cases, bread boxes, ovens, roasters, and similar work. The removable front can be easily and quickly replaced, as shown, making the Press available for a wide range of blanking, forming and embossing. Total weight about 8,400 lbs.

General description, page 237. Dimensions, page 290. Code Word............

The "Toledo" No. 204-A, 32-inch Double Crank Press With Deep Gap and Roll Feed

(Patented)



THIS illustration shows our No. 204-A Deep Gap Geared Press, fitted with single roll automatic feeding attachment and with cam actuated automatic slide carriers or feeds, designed for making steel box partitions. The wide sheets are fed into the dies where the blanking, perforating and forming operations are completed, finishing practically five separate operations at each stroke of the machine, and automatically ejecting the finished parts at the rate of about 45 per minute.

Modifications can be made in these attachments to suit various other sizes and shapes, or classes of work of a similar nature. Attachments of this character are most advantageous where this class of work is produced in large quantities, as the one machine and one operator practically perform the work of five Presses and five operators, and in a more accurate manner. Total weight about 9,500 lbs.

General description, page 237. Dimensions, page 290. Code Word...........

The "Toledo" Double Crank Multiple Punching, Shearing and Forming Presses

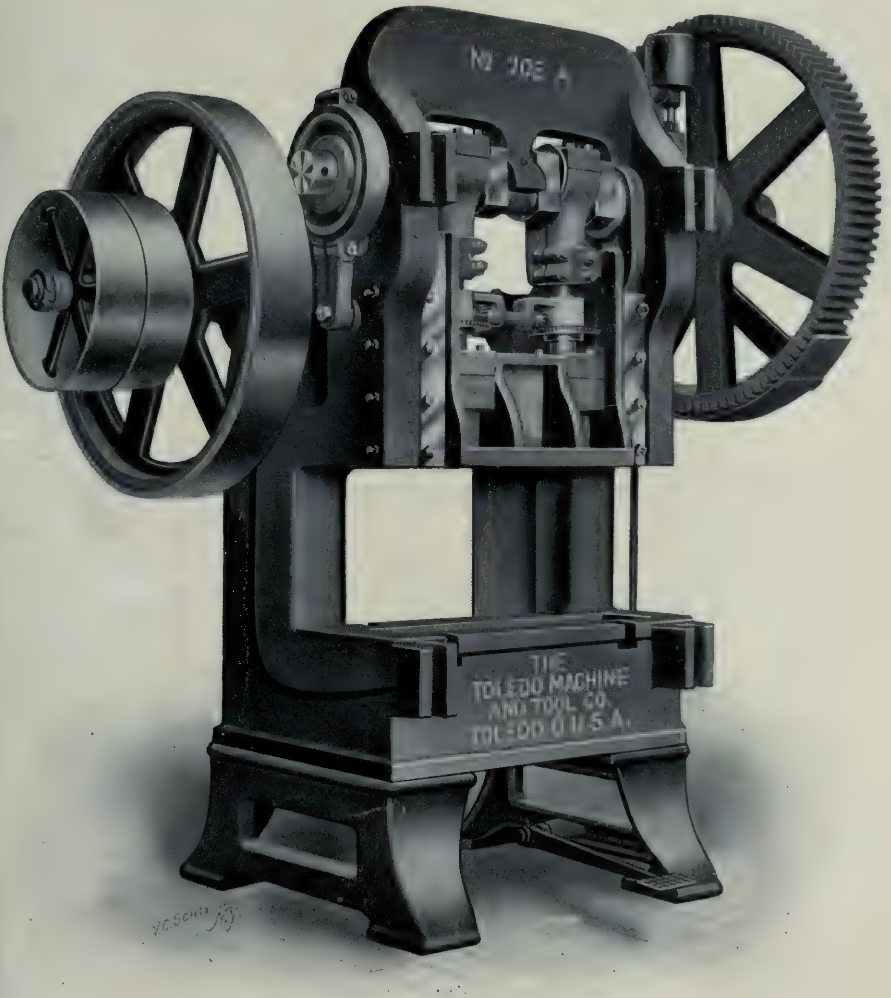
Number of Press	205-A	205-B	205-C	205-D	205-E	205-A Special	205-B Special	205-G
Old Number	....	....	....	....	....	Special	Special	....
Page of Catalogue	297	....	....	....	299	298	....	300
PLAIN PRESS Code Word								
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price with removable front	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	13150	13600	14300	15300	16500	15300	16200	25200
Area of slide flange, F. to B., R. to L. ... inches	15 x 28	15 x 34	15 x 40	15 x 46	15 x 52	24 x 28	24 x 34	15 x 94
Area of bed and bolster plate, F. to B., R. to L. inches	16 x 47	16 x 53	16 x 59	16 x 65	16 x 71	30 x 47	30 x 53	16 x 96
Opening in bed, F. to B., R. to L. ... inches	6 x 36	6 x 42	6 x 48	6 x 54	6 x 60	20 x 36	20 x 42	6 x 76
Distance back from center of slide ... inches	8	8	8	8	8	15	15	9½
Distance between uprights ... inches	36	42	48	54	60	36	42	84
Standard stroke of slide ... inches	2½	2½	2½	2½	2½	2½	2½	2½
Adjustment of slide ... inches	2½	2½	2½	2½	2½	2½	2½	2½
Standard distance bed to slide, str. and adj. up .. in.	13	13	13	13	13	13	13	13
Thickness of bolster plate ... inches	2¼	2¼	2¼	2¼	2¼	2½	2½	2¼
Diameter and face of flywheel ... inches	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7
Weight of flywheel ... pounds	1350	1350	1350	1350	1350	1350	1350	1350
Speed of flywheel ... R. P. M.	80	80	80	80	80	80	80	80
Distance floor to center of shaft ... inches	81	81	81	81	81	81	81	89
Floor space over all, F. to B., R. to L. ... inches	64 x 76	64 x 82	64 x 88	64 x 94	64 x 100	72 x 76	72 x 82	72 x 130
Floor space of base, F. to B., R. to L. ... inches	50 x 48	56 x 54	56 x 60	56 x 66	56 x 72	70 x 48	70 x 54	62 x 102
GEARED PRESS Code Word								
Price	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	14650	15250	15900	16900	18100	16800	17800	26800
Proportion of gearing	7:1	7:1	7:1	7:1	7:1	7:1	7:1	7:1
Diameter of gear ... inches	54	54	54	54	54	54	54	54
Size of balance wheel ... inches	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½	42 x 6½
Weight of balance wheel ... pounds	1000	1000	1000	1000	1000	1000	1000	1000
Size of belt wheel ... inches	24x 6	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6	24 x 6
Speed of belt wheel ... R. P. M	275	275	275	275	275	275	275	275
Strokes of slide per minute	40	40	40	40	40	40	40	40
Floor space over all, F. to B., R. to L. ... inches	78 x 102	78 x 108	78 x 114	78 x 120	78 x 126	79 x 102	79 x 108	78 x 150

For special features see page ...

4-piece

The "Toledo" No. 205-A, 36-Inch Double Crank Press, Geared

(Patented)


No. 205 A
THE
TOLEDO MACHINE
AND TOOL CO.
TOLEDO O U.S.A.
V.C.SCHIT N.Y.

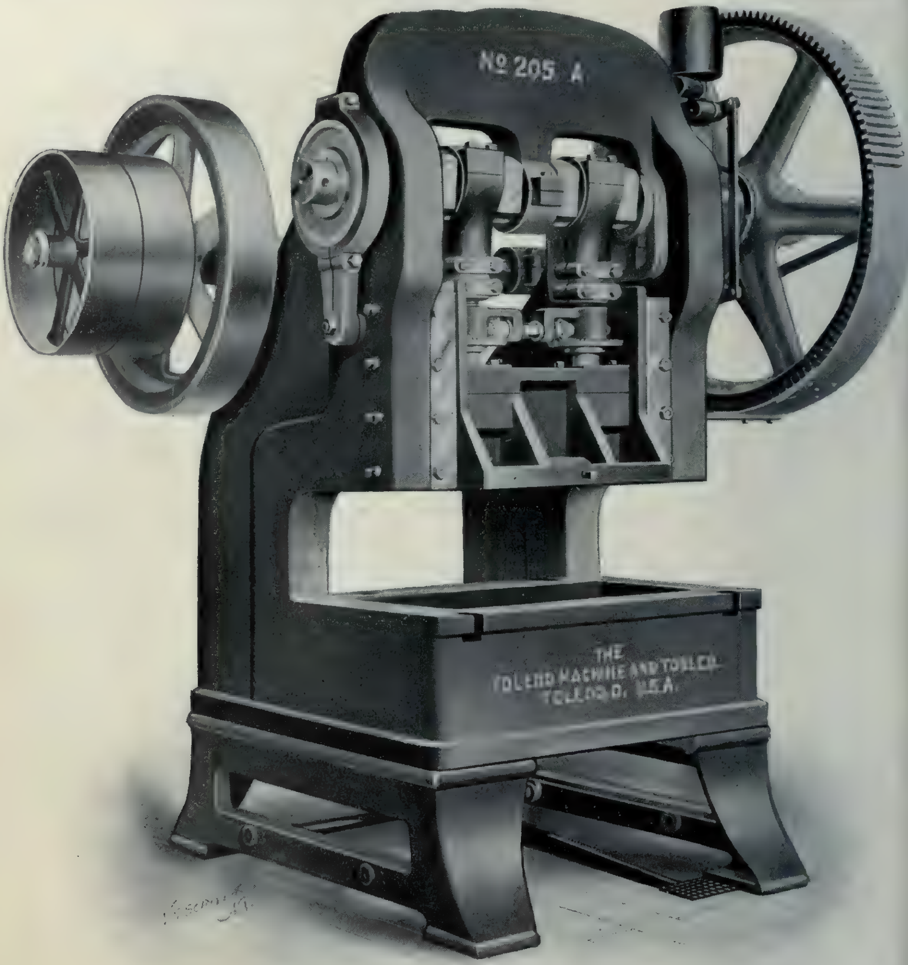
THIS regular standard High Pattern Double Crank Press is adapted to heavy shearing, forming, multiple punching on agricultural implement parts and similar heavy work.

Can be fitted with a long stroke or slide motion suitable for deep forming, and for receiving tie rods, when required, for heavy classes of work. Total weight about 14,650 lbs.

General description, page 237. Dimensions, page 296. Code Word...........

The "Toledo" No. 205-A, 36-Inch Double Crank Press, Geared. With Deep Gap

(Patented)



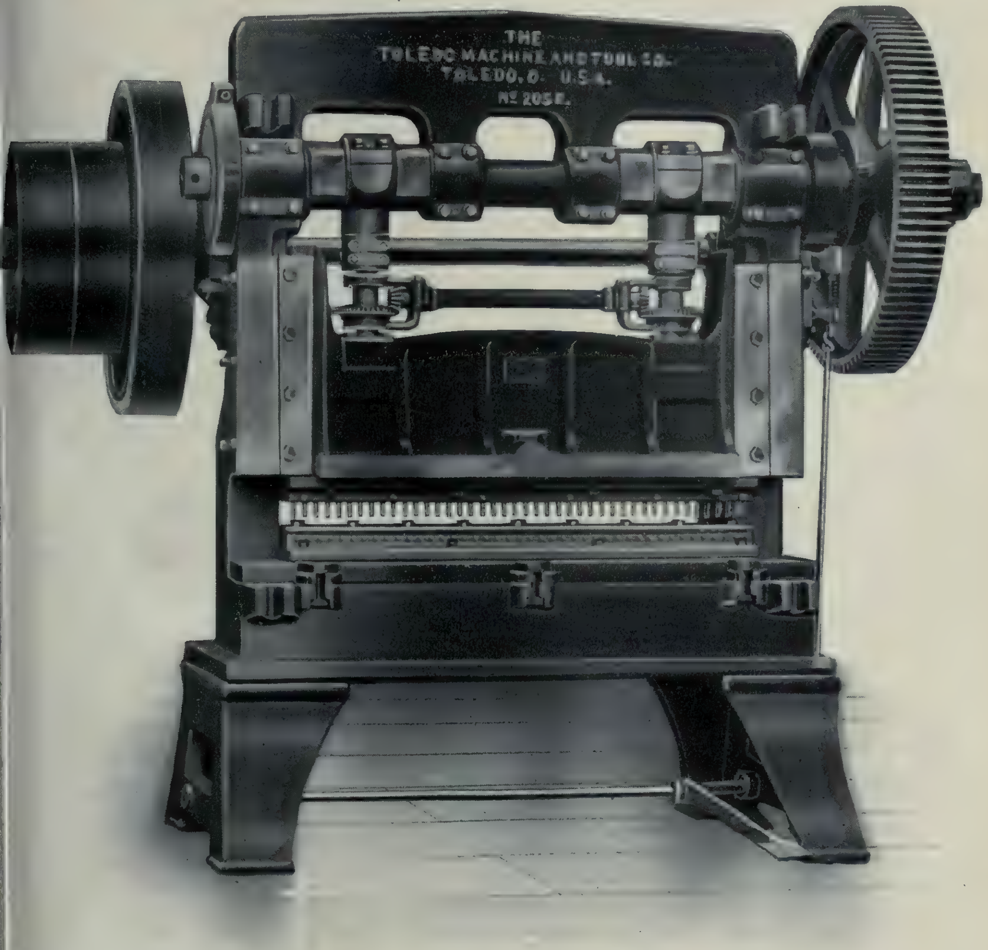
THE bed area of this Press is, as shown, unusually large from right to left and from front to back. The large opening in bed makes Press suitable for cutting large blanks, perforating wide sheets, etc., being most efficient on gas range and stove work, automobile stampings and a similar line.

Press will accommodate special roll and slide feeding attachments for performing a number of operations at one stroke.

Can be fitted with tie rods for heavy cutting, embossing and forming. Total weight about 14,650 lbs.

General description, page 237. Dimensions, page 296. Code Word...........

The "Toledo" No. 205-E, 60-Inch Double Crank Press, Geared



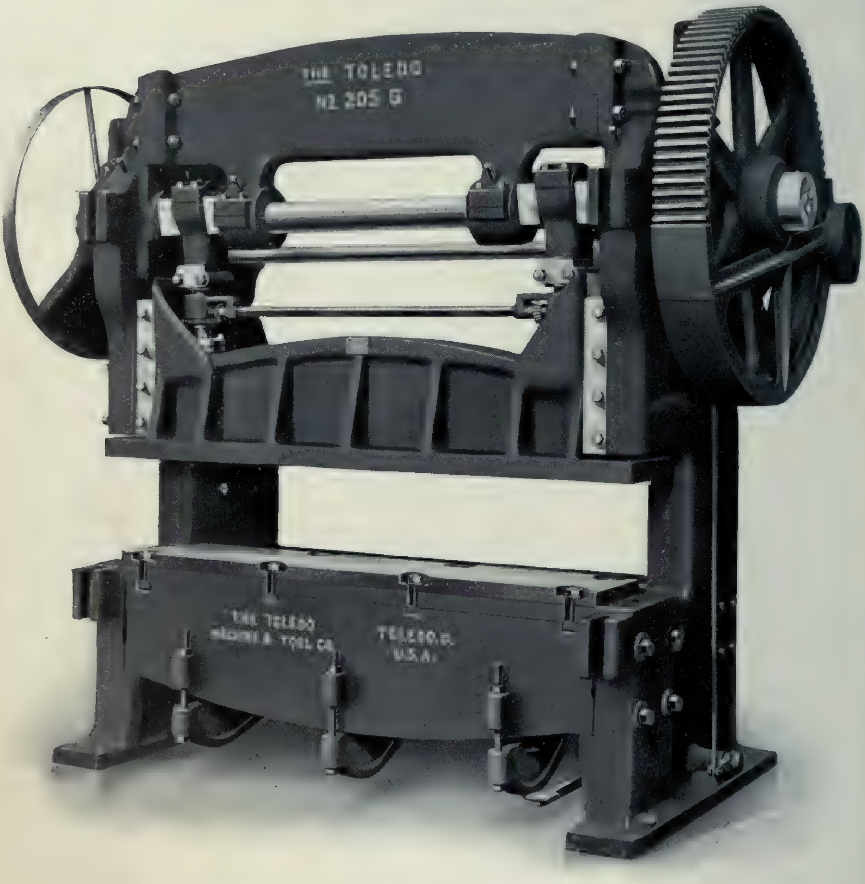
THE holders, shown on Press illustrated above, are removable, so that other forms of dies for punching straight or staggered rows of holes, or shears for shearing, the full width of the machine may be used.

This Press is also used for riveting the iron work for mattresses and bed frames, for forming, and a variety of work similar to that done on the straight sided Presses, in addition to the work this style of overhanging Press is specially fitted for.

Modification in width between housings, depth of throat, etc., made when desired. When inquiries are made, the number and diameter of holes distance between centers and thickness of material should be mentioned. Total weight about 18,100 lbs.

General description, page 237. Dimensions, page 296
Code Word, excusive of holders and dies............

The "Toledo" No. 205-G. 84-Inch Double Crank Press



THIS widened pattern Gap Press, with built-up frame construction is adapted to perforating, shearing and forming long strips for parts of steel fence posts, ties and other long work.

Press is fitted with our new form of powerful spring pressure or drawing attachment for operating heavy forming dies. Weight about 26,800 lbs.

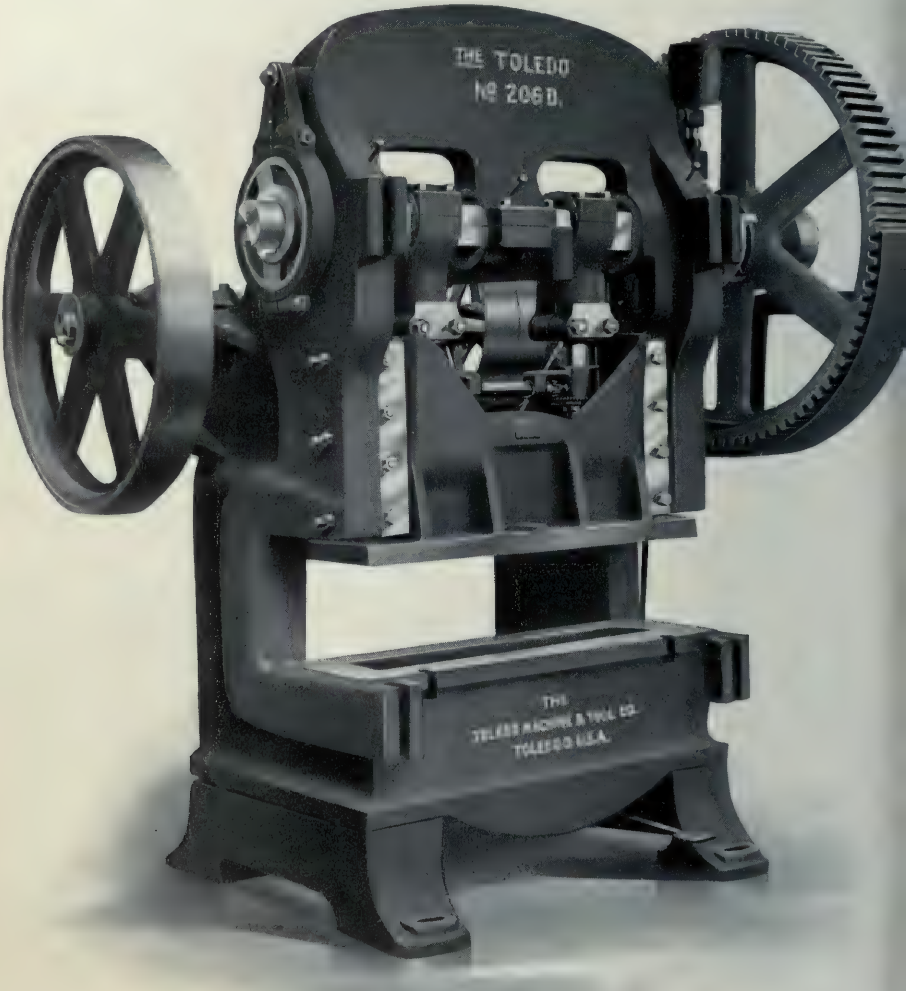
General description, page 237. Dimensions, page 296. Code Word...........

The Toledo Double Crank Multiple Punching, Shearing and Forming Presses

Number of Press		206-A	206-B	206-C	206-D	206-E	206-F
Old Number		....	....	....	....	....	....
Page of Catalogue		....	302	....	....	....	304
PLAIN PRESS Code Word							
Price including bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price with removable front		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	22100	23600	26600	32100	38000	41000
*Area of slide flange, F. to B., R. to L.	inches	16 x 33	16 x 39	16 x 51	16 x 63	16 x 75	16 x 81
*Area of bed and bolster plate, F. to B., R. to L.	inches	20 x 54½	20 x 63½	20 x 72	20 x 84	20 x 96	20 x 102
*Opening in bed, F. to B., R. to L.	inches	8 x 42	8 x 48	8 x 48	8 x 65	8 x 72	8 x 78
Distance back from center of slide	inches	9	9	9	9	9	9
Distance between uprights	inches	42	48	60	72	84	96
*Standard stroke of slide	inches	3	3	3	3	3	3
Adjustment of slide	inches	3	3	3	3	3	3
*Standard distance bed to slide, stroke and adjustment up	inches	14	14	14	14	14	14
Thickness of bolster plate	inches	2½	2½	2½	2½	2½	2½
Diameter and face of flywheel	inches	60 x 7½	60 x 7½	60 x 7½	60 x 7½	60 x 7½	60 x 7½
Weight of flywheel	pounds	2150	2150	2150	2150	2150	2150
Speed of flywheel	R. P. M.	70	70	70	70	70	70
Distance floor to center of shaft	inches	85	85	85	85	85	85
Floor space over all, F. to B., R. to L.	inches	74 x 92	70 x 98	70 x 110	70 x 122	70 x 134	70 x 140
Floor space of base, F. to B., R. to L.	inches	62 x 56	62 x 62	62 x 74	62 x 86	62 x 98	62 x 104
GEARED PRESS Code Word							
Price		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	24000	25500	28500	34000	40000	43000
Proportion of gearing		6½:1	7½:1	7½:1	7½:1	7½:1	7½:1
Diameter of gear	inches	61	61	61	61	61	61
Size of balance wheel	inches	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7	50 x 7
Weight of balance wheel	pounds	1250	1250	1250	1250	1250	1250
Size of belt wheel	inches	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6	28 x 6
Speed of belt wheel	R. P. M.	225	225	225	225	225	225
Strokes of slide per minute		30	30	30	30	30	30
Floor space over all, F. to B., R. to L.	inches	90 x 101	90 x 107	90 x 119	90 x 131	90 x 143	90 x 149

*These can be changed. For special features see page ...

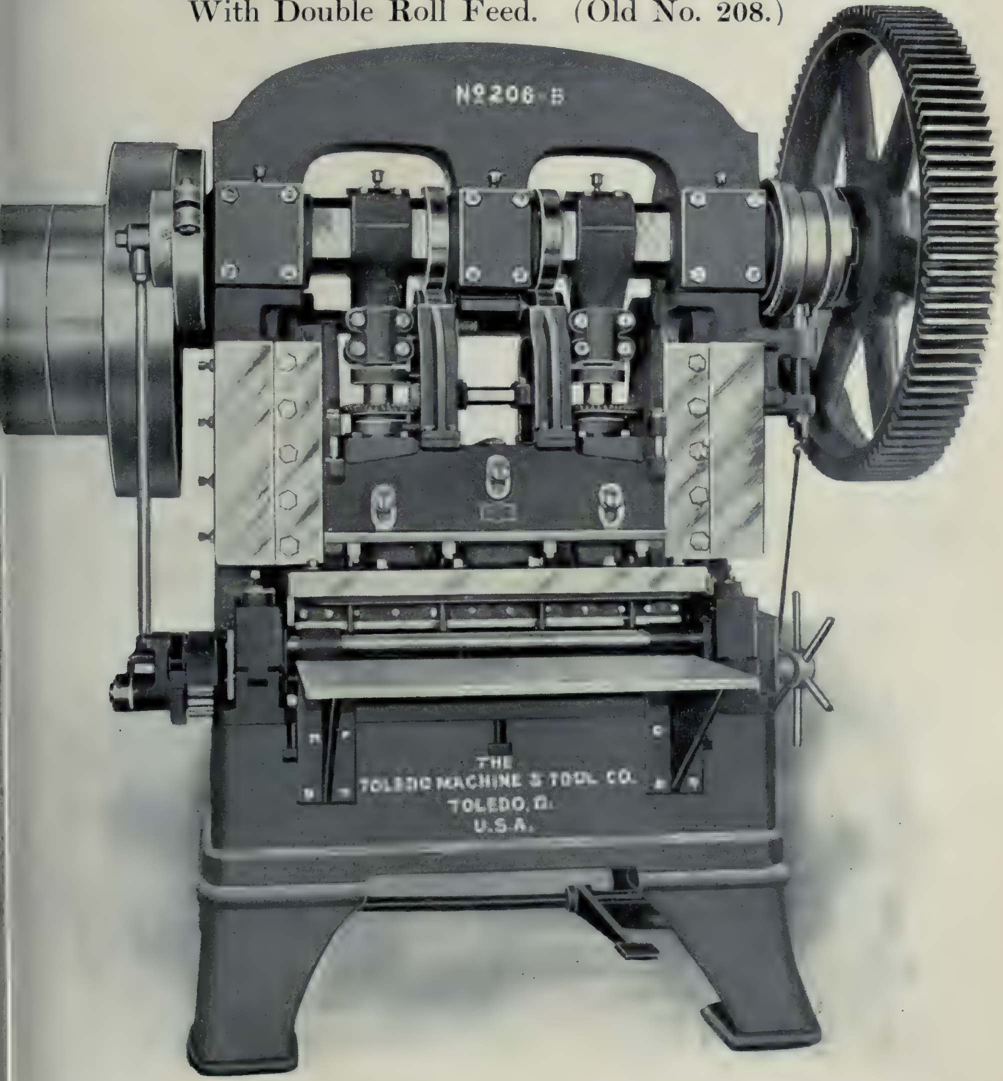
The "Toledo" No. 206-B, 48-Inch Double Crank Press, Geared.



THIS powerful Press is built in several sizes, and is adapted and used for a general line of multiple punching, shearing, blanking and forming on a wide range of sheet and bar metal work; to operating perforating dies for automobile brake bands, linings, frame cross channels, tank and windmill frames, etc. Total weight about 26,000 lbs.

General description, page 237. Dimensions, page 301. Code Word...........

The "Toledo" No. 206-B, 48-inch Double Crank Press, Geared With Double Roll Feed. (Old No. 208.)



THIS Press has power and capacity for punching 240 holes ⅛-inch diameter through 14-gauge mild steel or iron plate. It will punch straight or staggered rows of holes. Tools may be easily and quickly removed and others inserted.

Specially adapted to use in the manufacture of perforated sheets used for brewers' and miners' supplies, metal lockers, and a similar line of work.

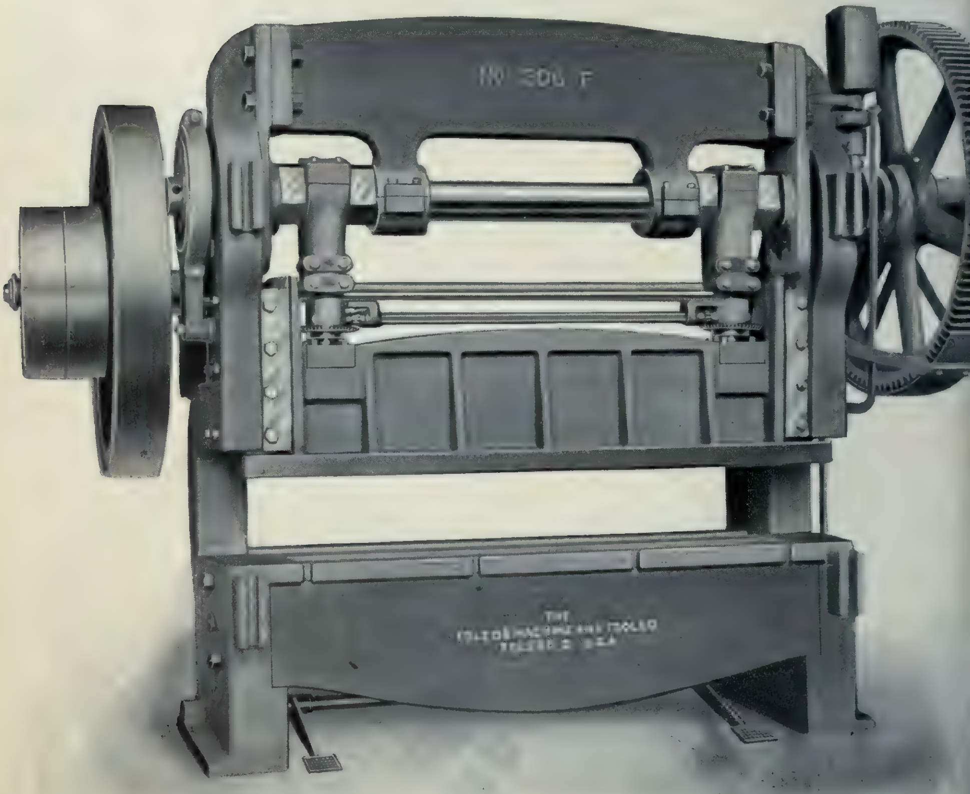
Built in several sizes, with widths and capacity to suit requirements.

See page 13 for roll feeds. Total weight about 25,500 lbs.

General description, page 237. Dimensions, page 301.
Code Word, with roll feed....................
Code Word, as shown, exclusive of dies........

The "Toledo" No. 206-F, 96-Inch, Double Pitman Geared Power Press

(Patented)



THIS illustration shows our 96-inch No. 206-F double Pitman Power Press for multiple punching, forming, shearing and other work made of the medium and heavier gauges of sheet metal, such as rims for autos and other wheels, agricultural implements and similar work. Total weight about 43,000 lbs.

General description, page 237. Dimensions, page 301. Code Word...........

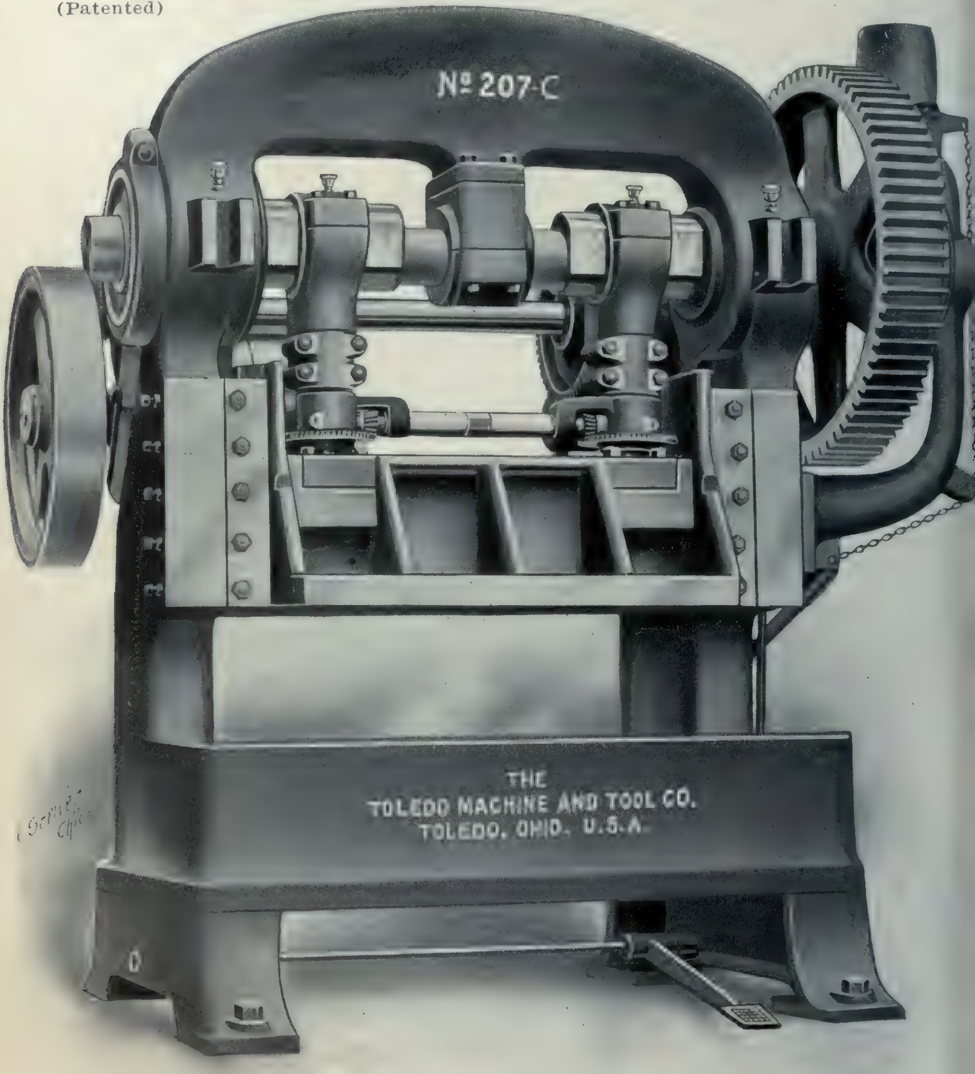
The "Toledo" Double Crank Multiple Punching, Shearing and Forming Presses

Number of Press	207-A	207-B	207-C	208-A	208-B	208-C	208-G
Old Number	....	....	....	....	....	....	....
Page of Catalogue	....	....	306	....	308	309	307
GEARED PRESS Code Word							
Price including bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price extra for plain, solid bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	35000	35800	38100	56500	60000	63500	78000
Area of slide flange, F. to B., R. to L. ... inches	18 x 34	18 x 38	18 x 50	32 x 36	32 x 48	32 x 60	32 x 108
Area of bed and bolster plate, F. to B., R. to L. ... inches	24 x 61	24 x 65	24 x 77	32 x 68	32 x 80	32 x 92	32 x 140
Opening in bed, F. to B., R. to L. ... inches	10 x 44	10 x 48	10 x 60	16 x 36	16 x 48	16 x 48	16 x 108
Distance back from center of slide ... inches	10	10	10	11½	11½	11½	11½
Distance between uprights ... inches	44	48	60	48	60	72	120
Standard stroke of slide ... inches	3	3	3	6	6	6	6
Adjustment of slide ... inches	3	3	3	4	4	4	4
Standard distance bed to slide, stroke and adj. up ... inches	15	15	15	16	16	16	16
Thickness of bolster plate ... inches	3	3	3	4	4	4	4
Proportion of gearing	22:1	22:1	22:1	26:1	26:1	26:1	26:1
Diameter of gear ... inches	61	61	61	74	74	74	74
Size of balance wheel ... inches	50 x 7	50 x 7	50 x 7	60 x 8	60 x 8	60 x 8	60 x 8
Weight of balance wheel ... pounds	1250	1250	1250	1650	1650	1650	1650
Size of belt wheel ... inches	20 x 6	28 x 6	28 x 6	32 x 8	32 x 8	32 x 8	32 x 8
Speed of belt wheel ... R. P. M.	375	375	375	375	375	375	375
Strokes of slide per minute	17	17	17	14	14	14	14
Distance floor to center of shaft ... inches	92	92	92	103	103	103	103
Floor space of base, F. to B., R. to L. ... inches	68 x 62	68 x 66	68 x 78	62 x 68	62 x 80	62 x 92	62 x 140
Floor space over all, F. to B., R. to L. ... inches	86 x 114	86x 118	86 x 130	117 x 134	117 x 145	117 x 158	117 x 205

No. 208-G—Special, fitted with automatic knockout, weight complete, about 88,000 pounds.

The "Toledo" No. 207-C, 60-Inch Double Crank Press, Geared.

(Patented)

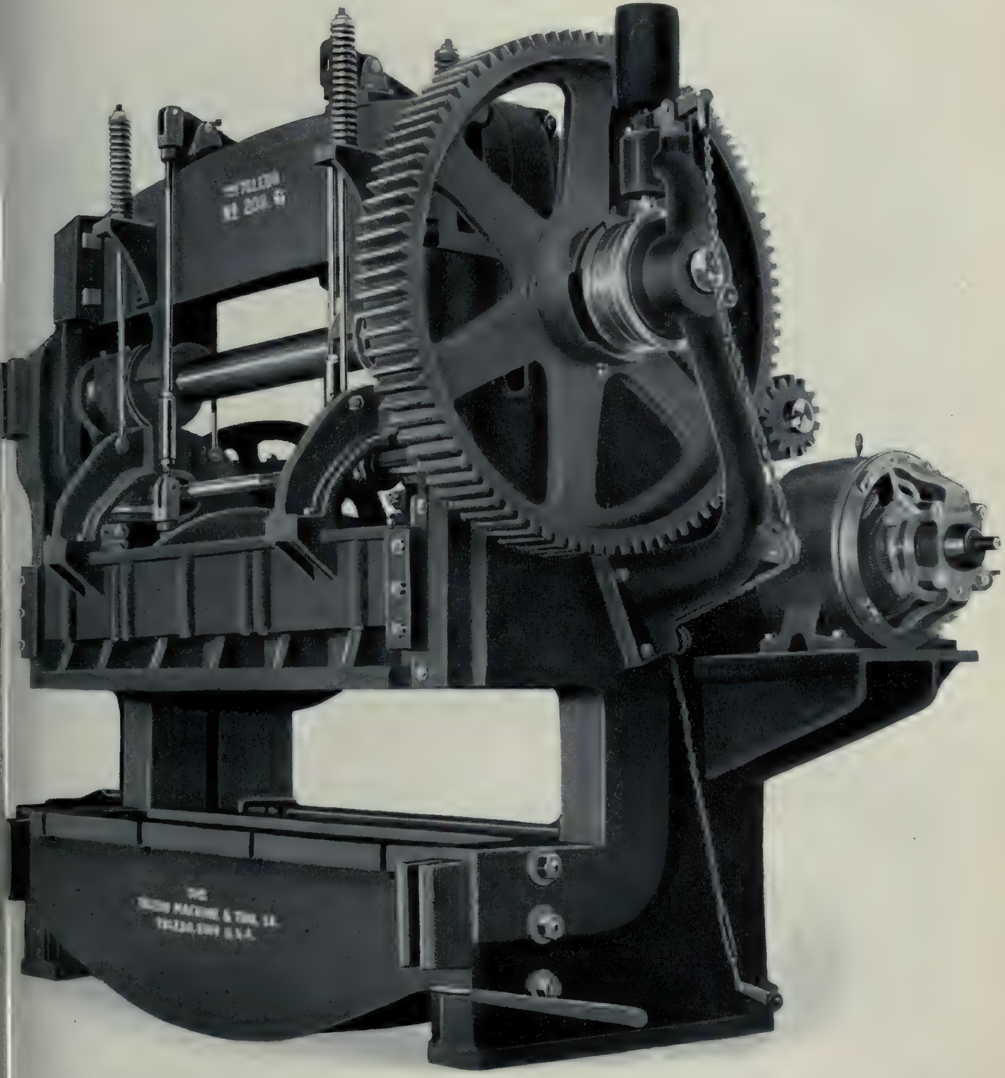


THIS Press is designed for very heavy work in cutting, blanking, forming and shearing, operating large gang punches on steel truck parts and similar work.

Many of the dimensions, such as distance between housings, opening in bed, motion of slide, etc., may be changed to suit requirements. Total weight about 38,100 lbs.

General description, page 237. Dimensions, page 305. Code Word............

The "Toledo" No. 208-G, 120-Inch Double Crank Press, Geared—With Motor-Drive. (Patented)

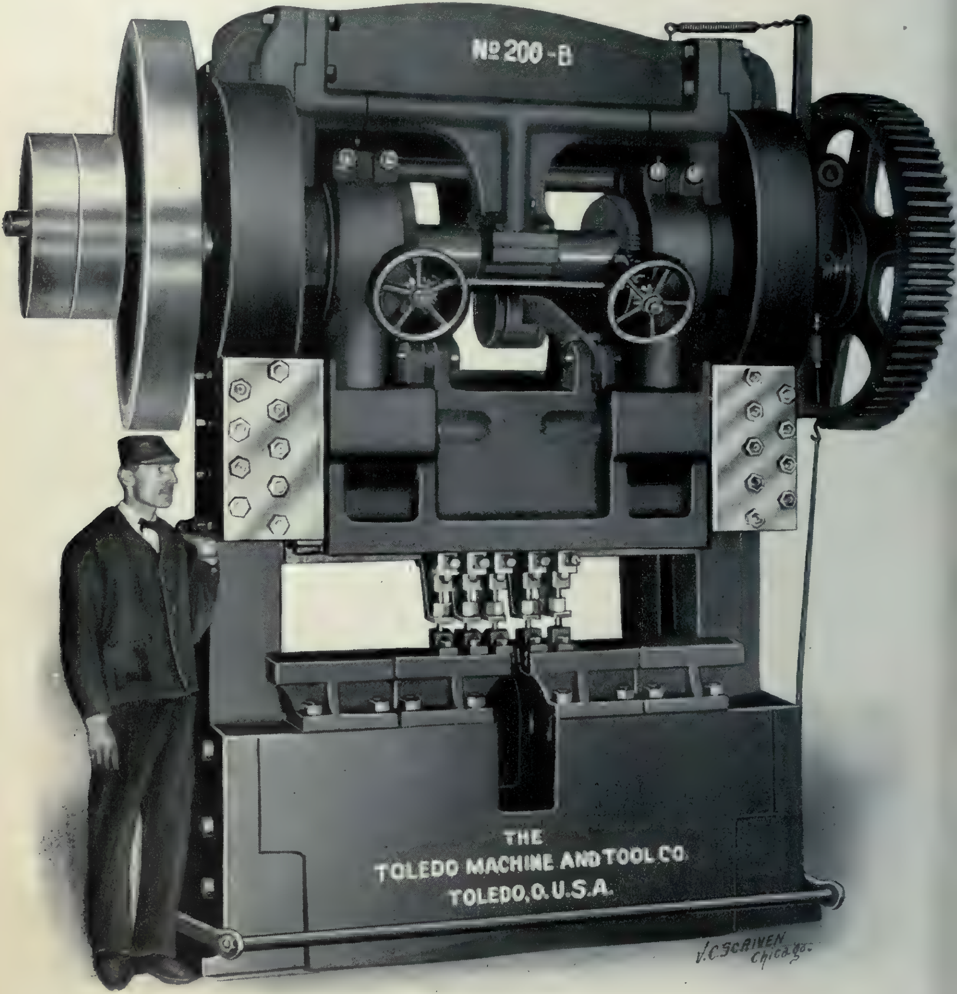


THIS illustration shows our special heavy 10-foot Double Pitman Press No. 208-G, with direct-connected motor, and fitted with positive cam acutated stripping and hold-down attachment.

It is designed for operating gang or group dies for blanking and perforating the openings in medium heavy sheets used in the manufacture of oil tanks of the large and medium sizes. Also adapted to use in the manufacture of agricultural implements, steel wagons, concrete reinforcements, etc. Total weight about 78,000 lbs.

General description, page 237. Dimensions, page 305. Code Word............

The "Toledo" No. 208-B, 60-Inch Double Crank Press, Geared
(Old No. 210.)



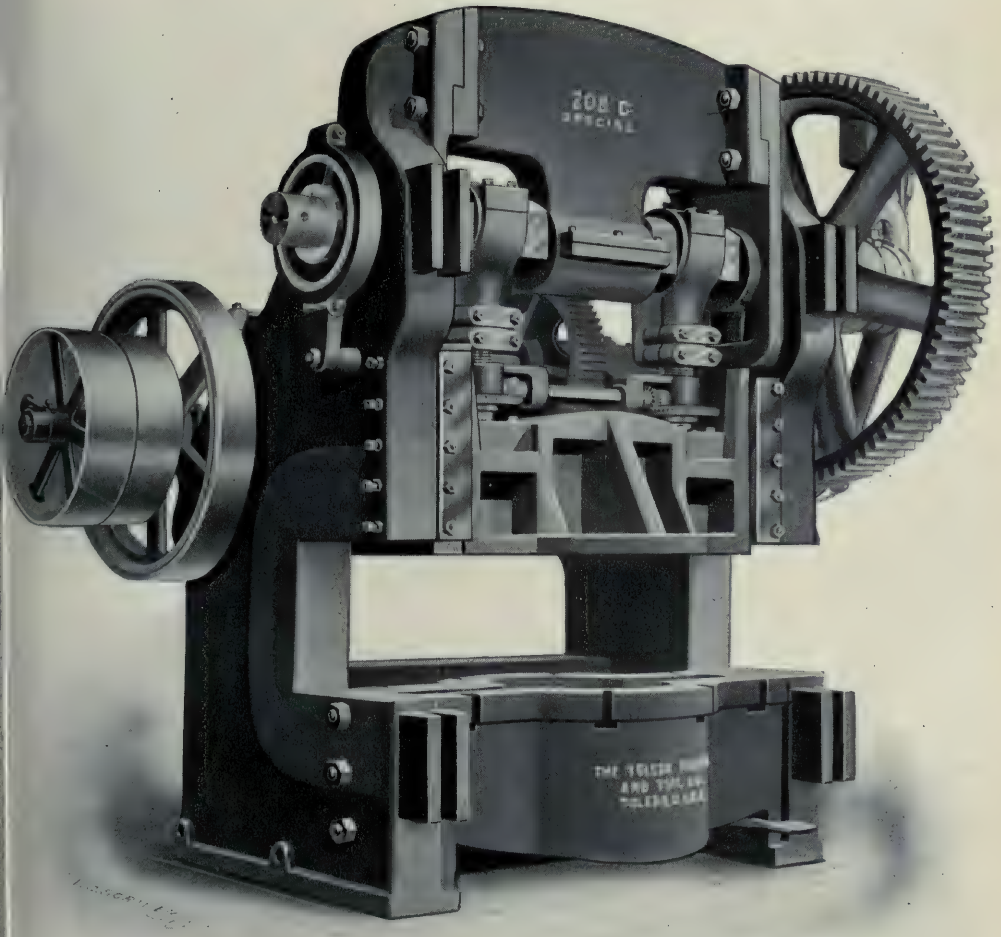
THIS Press is built with adjustable punches and die holders, shown in illustration, for punching holes at varying distances between centers. Punch holders are *fitted with gags* so that *by simply pulling out or pushing in the gags, with the Press running continuously,* one or more holes may be *omitted or punched* as desired.

Press may be arranged for belt pulley or motor-drive. Specially adapted to punching, shearing, and coping structural iron and bridge work; also to use in ship building, boiler making, manufacturing steel car trucks; to cutting and punching I-beams, angles, and a general line of heavy work. Total weight about 60,000 lbs.

General description, page 237. Dimensions, page 305

The "Toledo" No. 208-C, 72-Inch Double Crank Press, Geared With Special Bed

(Patented)



OUR 72-Inch Double Crank Press, with special bed and stroke or slide motion, is specially adapted to blanking, drawing, forming and perforating on heavy steel wagons, running gears and supports, agricultural implements and work of a similar nature.

Diameter of round bed at intersecting circle, 45 inches.

Diameter of slide flange at intersecting circle, 37 inches.

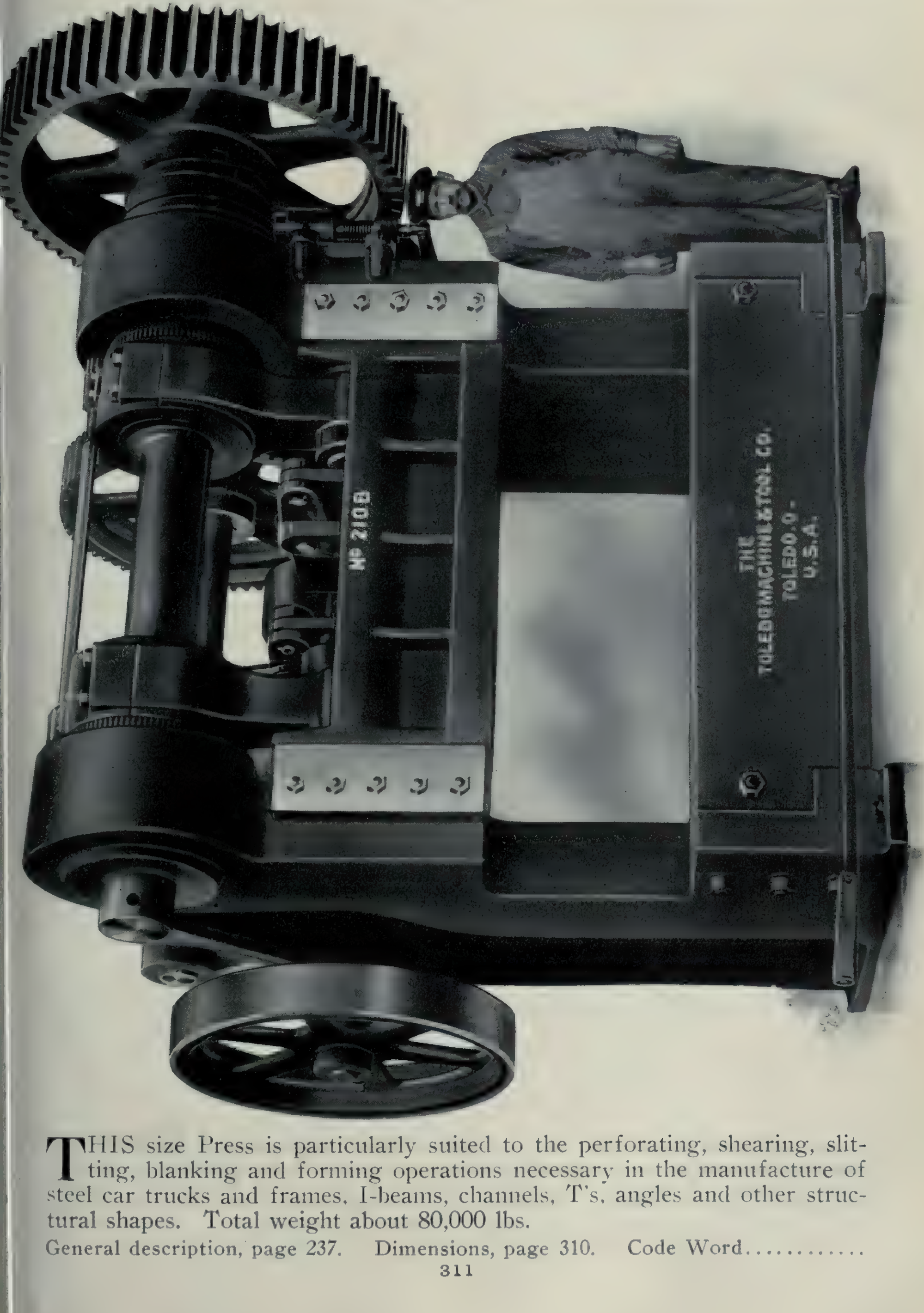
Total weight about 63,500 lbs.

General description, page 237. Dimensions, page 305

The "Toledo" Double Crank Multiple Punching, Shearing and Forming Presses.

Number of Press		210-A	210-B	210-C	212-A	212-B	212-C
Old Number		....	....	....	....	....	....
Page of Catalogue		....	311	....	....	....	....
GEARED PRESS	Code Word						
Price including bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Price for extra plain, solid bolster plate		$.....	$.....	$.....	$.....	$.....	$.....
Weight, about	pounds	75000	80000	85000	88000	94000	105000
Area of slide flange, F. to B., R. to L.	inches	18 x 52	18 x 64	18 x 76	21 x 62	21 x 74	21 x 86
Area of bed and bolster plate, F. to B., R. to L.	inches	24 x 85	24 x 97	24 x 109	28 x 101	28 x 113	28 x 125
Opening in bed, F. to B., R. to L.	inches	8 x 60	8 x 72	8 x 84	10 x 72	10 x 84	10 x 96
Distance back from center of slide	inches	12	12	12	14	14	14
Distance between uprights	inches	60	72	84	72	84	96
Standard stroke of slide	inches	3	3	3	3	3	3
Adjustment of slide	inches	4	4	4	4	4	4
Standard distance bed to slide, stroke and adjustment up	inches	28	28	28	32	32	32
Thickness of bolster plate	inches	4	4	4	5	5	5
Proportion of gearing		30:1	30:1	30:1	30:1	30:1	30:1
Diameter of gear	inches	84	84	84	84	84	84
Size of balance wheel	inches	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8	60 x 8
Weight of balance wheel	pounds	2000	2000	2000	2000	2000	2000
Size of belt wheel	inches	34 x 8	34 x 8	34 x 8	34 x 8	34 x 8	34 x 8
Speed of belt wheel	R. P. M.	330	330	330	300	300	300
Strokes of slide per minute		11	11	11	11	11	11
Distance floor to center of shaft	inches	100	100	100	116	116	116
Floor space of base, F. to B., R. to L.	inches	74 x 85	74 x 98	74 x 110	85 x 100	85 x 114	85 x 125
Floor space over all, F. to B., R. to L.	inches	136x136	136x148	136x160	152x170	152x182	152x194

The "Toledo" No. 210-B, 72-Inch Double Crank Power Press, Geared.



THIS size Press is particularly suited to the perforating, shearing, slitting, blanking and forming operations necessary in the manufacture of steel car trucks and frames, I-beams, channels, T's, angles and other structural shapes. Total weight about 80,000 lbs.

General description, page 237. Dimensions, page 310. Code Word............

The "Toledo" Single and Double Crank Patented Toggle Drawing and Deep Stamping Presses

THE "Toledo" Patented Toggle Movement is of the latest and most improved design, providing not only the most powerful, but the longest obtainable dwell to the blank-holder with the least possible friction in the movement controlling the toggle arms. These features, combined with the most rigid and compact construction throughout, guarantee the best possible results in deep drawn and stamped work.

We build these Presses in either single or double crank type, in about twenty-five different sizes, with shaft diameters ranging from 4 inches to 16 inches, and with capacities equal up to about 2,000 tons working pressure. We can furnish the Double Crank Presses with any required width between housings and with bed area, die space and other dimensions to suit customers' individual requirements.

The most noteworthy improvements in the "Toledo" Toggle Drawing Presses over those of any other make are in the blank-holder control as referred to above, the improved design which has reduced to a minimum the number of toggle arms or links, and the fact that this improved, simplified design reduces the power required to operate these Presses.

The toggle arms are made of steel throughout, with inserted bronze bushings at each of the bearings; these in turn operate on high carbon hammered steel shafts or studs. Each stud or bearing is lubricated from the end by means of self-feeding oil or compression cups. The smoothness and ease of action obtained by this thorough lubrication, reduces the friction to a minimum and allows the machine to be driven with the least possible amount of power.

The "Toledo" Patented Friction Clutch, fitted to all our Toggle Drawing Presses, is simple in design and unusually powerful, with unusually wide friction and braking surfaces.

A quick, accurate adjustment is provided in such a manner that damage to the clutch by unequal adjustment is positively avoided. These clutches are capable of successfully operating the machines to the limit of their capacity. In addition to the hand lever, an automatic operating mechanism is fitted to these clutches on the medium and smaller machines.

The automatic device is quickly and easily disengaged and thrown out of action, thus putting the machine completely under the control of the operator, and by means of the hand lever affording convenience in setting the dies and providing for continuous operation of the Press.

The blank-holder or outer slide, as well as the plunger or inner slide, have broad, long bearings, providing ample support and the greatest rigidity for both slides during the entire travel or motion of the stroke.

When so ordered, we can equip any of these Presses with our new form bottom lift-out, as shown in the illustration of our No. 163 Toggle Drawing Press on page 319, or with outer bottom lift-out as shown attached to Nos. 168½ and 169½ Toggle Drawing Presses on pages 329 and 331.

The bolster plates and sub-plates for blank-holders are furnished with "T" slots radiating from center, when so ordered.

For drawing stamped steel and enameled ware, seamless steel bath tubs, metallic caskets, wheelbarrow trays, seamless steel sinks, automobile radiator casings and similar parts, stamped and drawn tin ware, steel pails, kegs or packages for white lead, paints and similar matter, steel stove parts, mail boxes, vending machines, coin registers, lantern, lamp and headlight shells, and innumerable other articles made of brass, copper, aluminum, steel or tin plate, there is nothing to exceed the efficiency of "TOLEDO" Toggle Drawing Presses.

The frames and movements are proportioned with the greatest care and accuracy and, with the increased weight, give a greater factor of safety than is usually found in Presses of this type.

Our line of Toggle Drawing Presses includes from the smallest to the largest sizes which it is practical to make in machines of this construction, for work varying from pint cups and lantern parts to seamless stamped steel or drawn bath tubs, steel barrels, wheelbarrow trays, steel sinks, road scrapers and similar work.

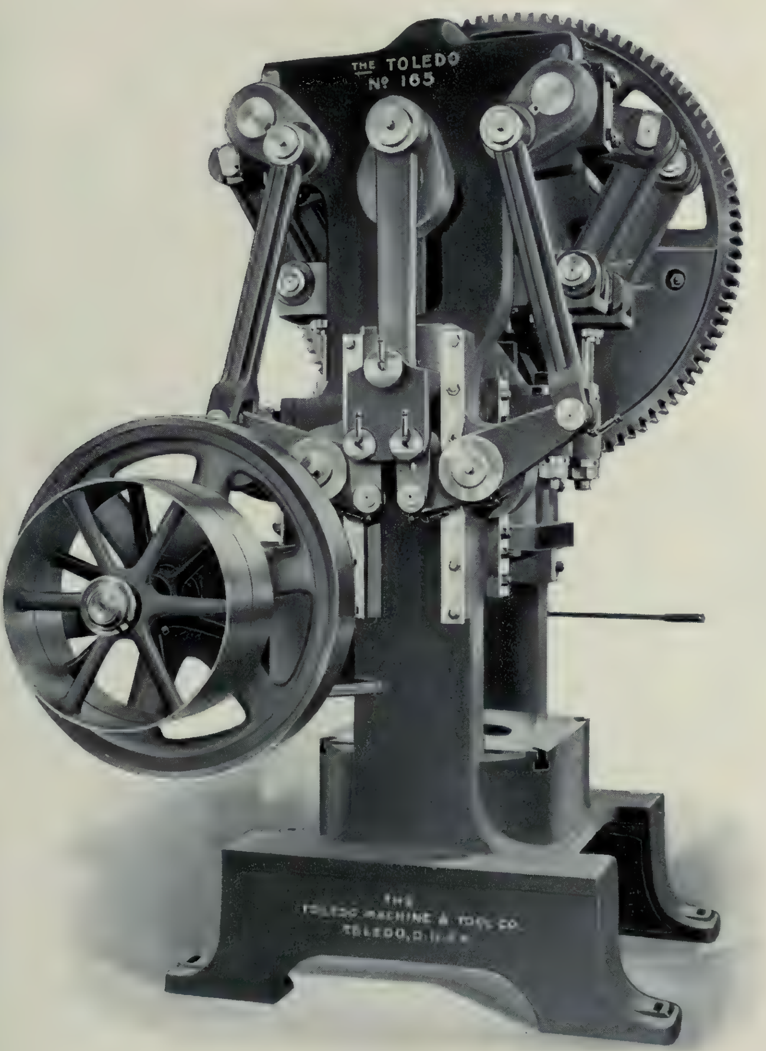
The weight of these Presses ranges from 5,000 pounds to 200,000 pounds.

The "TOLEDO" Toggle Drawing and Deep Stamping Presses.

Number of Press	161	162	163	164	164½	164¾	165	165¼	165½	166
Page of Catalogue	317	318	319	320	321		322		324	325
Code Word										
Price with bolster	$.....	$.....	$.....	$.....	$.....	$....	$.....	$....	$.....	$.....
Price of extra bolster	$.....	$.....	$.....	$.....	$.....	$....	$.....	$....	$.....	$.....
Weight, about ... pounds	6550	9500	11000	17200	20000	22000	30700	30700	34100	42200
Area of bed, F. to B., R. to L. ... inches	17 x 17	21 x 21	23 x 23	26 x 26	26 x 26	26x26	32 x 32	32x32	30 x 30	34 x 34
Opening in bed, diameter ... inches	8	9	11	14	14	14	14	14	14	17
Stroke of blankholder ... inches	3¾	5	5¼	8	9¾	10	10	10	13	13
Stroke of plunger ... inches	6¾	8¼	9¾	13	13	17¼	14	14	20	17
Adjustment of blankholder and plunger inches	3	4	4	4	4	4	6	6	6	8
Distance bed to blankholder, stroke down and adjustment up ... inches	9½	14	15	16	20	24	20	20	25	21½
Distance bed to plunger, stroke down and adjustment up ... inches	11½	16	17	18	21	25½	21	21	27	23½
Thickness of bolster plate ... inches	2½	3	3	3¼	3¼	3¼	3½	3½	3½	4
Thickness of blankholder plate ... inches	2	2¼	2¼	2½	2½	2½	2¾	2¾	2¾	3
Diameter of main gear ... inches	45	52	61	71	61	61	74	86	74	74
Proportion of gearing, about	6:1	8:1	9:1	10:1	22:1	22:1	30:1	10:1	23:1	40:1
Size of balance wheel ... inches	34x5½	42 x 5	44 x 6	49 x 6	49 x 6	49x6	42x6½	60x7	60 x 7	49 x 6
Weight of balance wheel ... pounds	500	800	900	1000	1000	1000	1000	1400	1400	1000
Size of belt wheel ... inches	20 x 5	24 x 5	24 x 6	28 x 6	28 x 6	28x6	28 x 6	28x6	32 x 8	30 x 8
Speed of belt wheel ... R. P. M.	210	240	225	200	330	330	250	250	220	280
Strokes of slide per minute	35	30	25	20	15	15	8	25	10	7
Distance floor to center of shaft ... inches	71	79	82	88	100	100	105	105	112	108
Floor space over all, F. to B., R. to L. ... inches	53x75	60x85	68 x 93	76x100	75x108	75x108	82x122	82x122	90x150	86x156
Floor space of base, F. to B., R. to L ... inches	36x34	42x42	42 x 42	48 x 46	48 x 46	48x46	68 x 54	68x54	68 x 54	74x106
Diameter of largest blank that can be drawn	14	15	17	20	20 x 26	20x26	26	26	25	30
Diameter of largest punch that can be used	8	10	11	14	10x15½ 14"diam	10x15½ 14"diam	20	20	19	24
Will draw in depth and lift out up to ... inches	3¼	4	4½	6	6	8	6½	6½	9½	8

Bed on No. 166 solid unless ordered otherwise.

The "Toledo" No. 165 Toggle Drawing Press

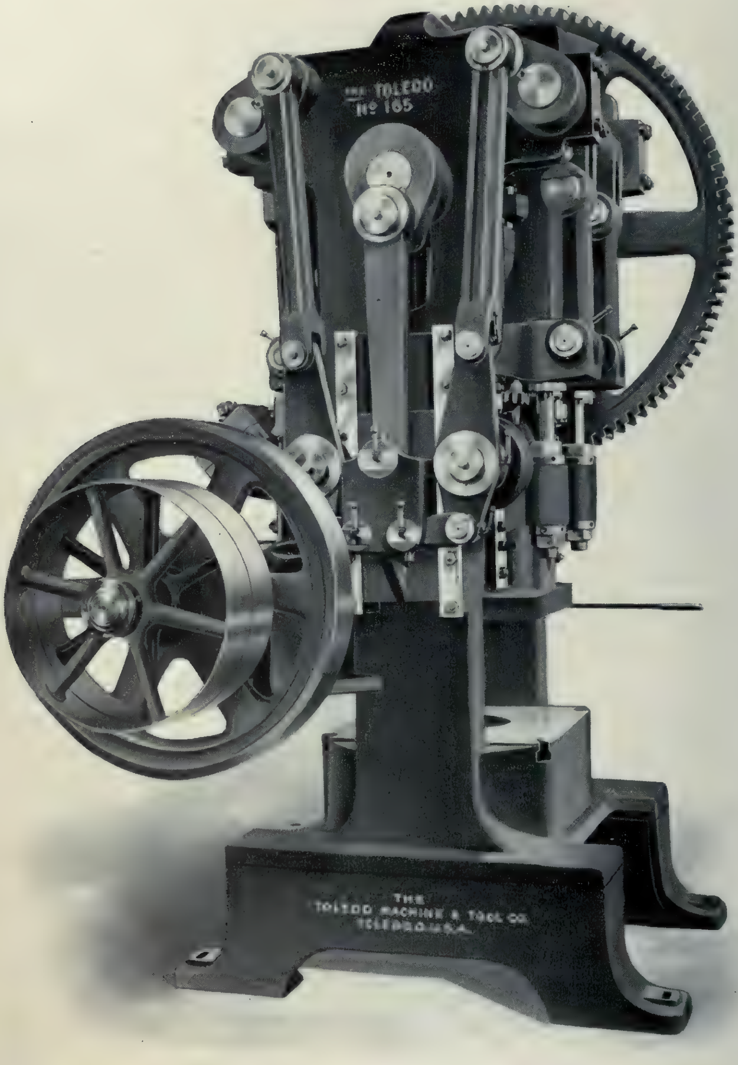


This illustration shows the Press with stroke up.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

The "Toledo" No. 165 Toggle Drawing Press

(Patented)

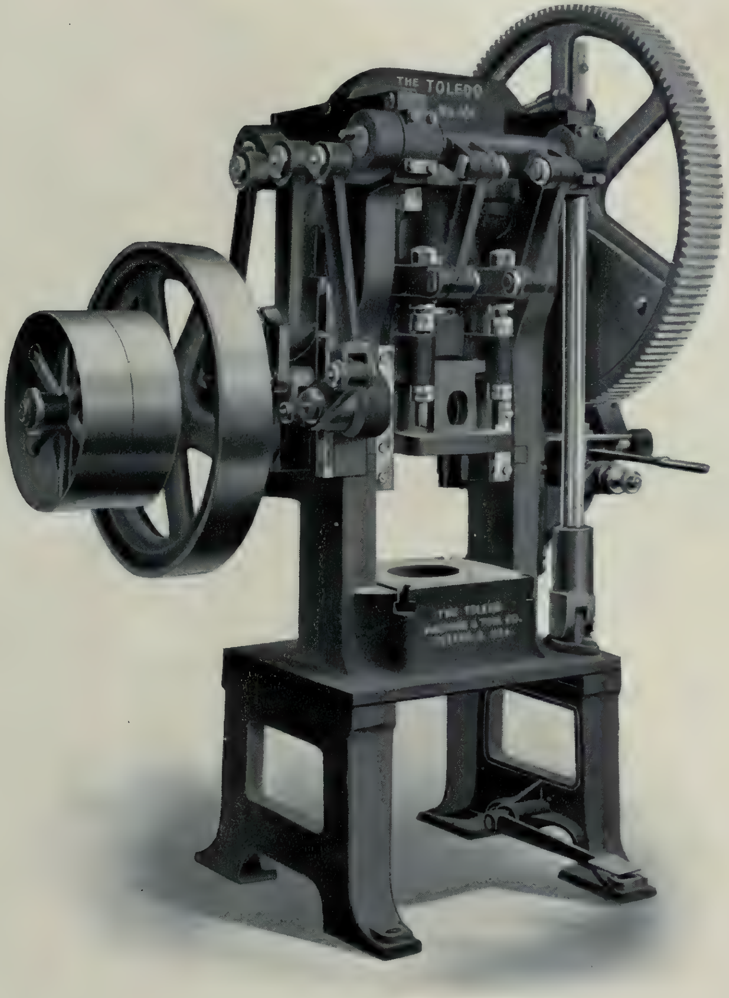


This illustration shows the Press with stroke down.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

The "Toledo" No. 161 Toggle Drawing Press, Geared

(Patented)

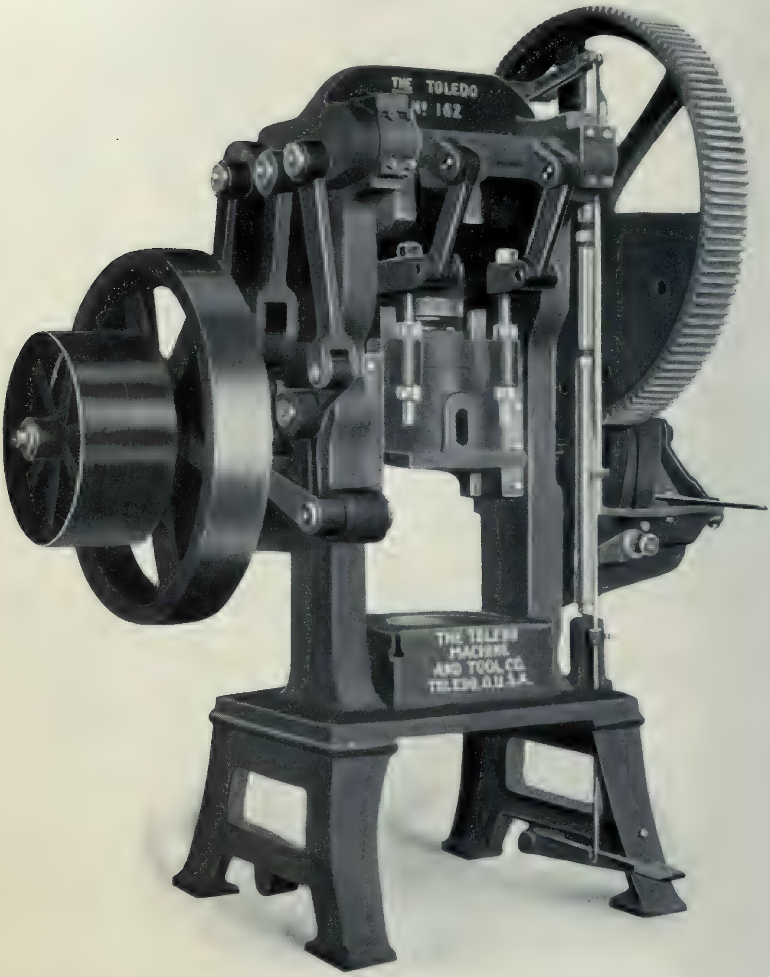


THIS Press is adapted to making articles of brass, zinc, iron, tin, steel and other metals up to and including 6 inches in diameter, 3¼ inches deep, such as cups, dippers, ladles, burner shells; lamp, lantern, and gas fixture parts, etc.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

The "Toledo" No. 162 Toggle Drawing Press Geared.

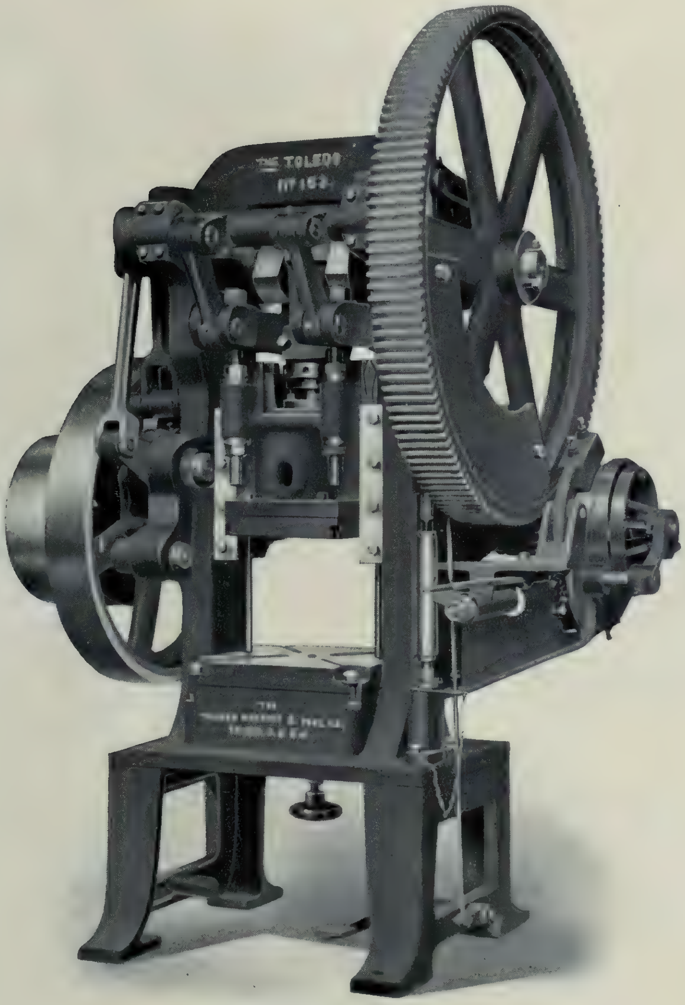
(Patented)



THIS Press is adapted to cutting and drawing pint cups, small brass shells, chandelier trimmings, lamp and lantern parts, small pans, dippers, plates, cups and work up to 10 inches diameter, 4 inches deep. Total weight about 9,500 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

The “Toledo” No. 163 Toggle Drawing Press.



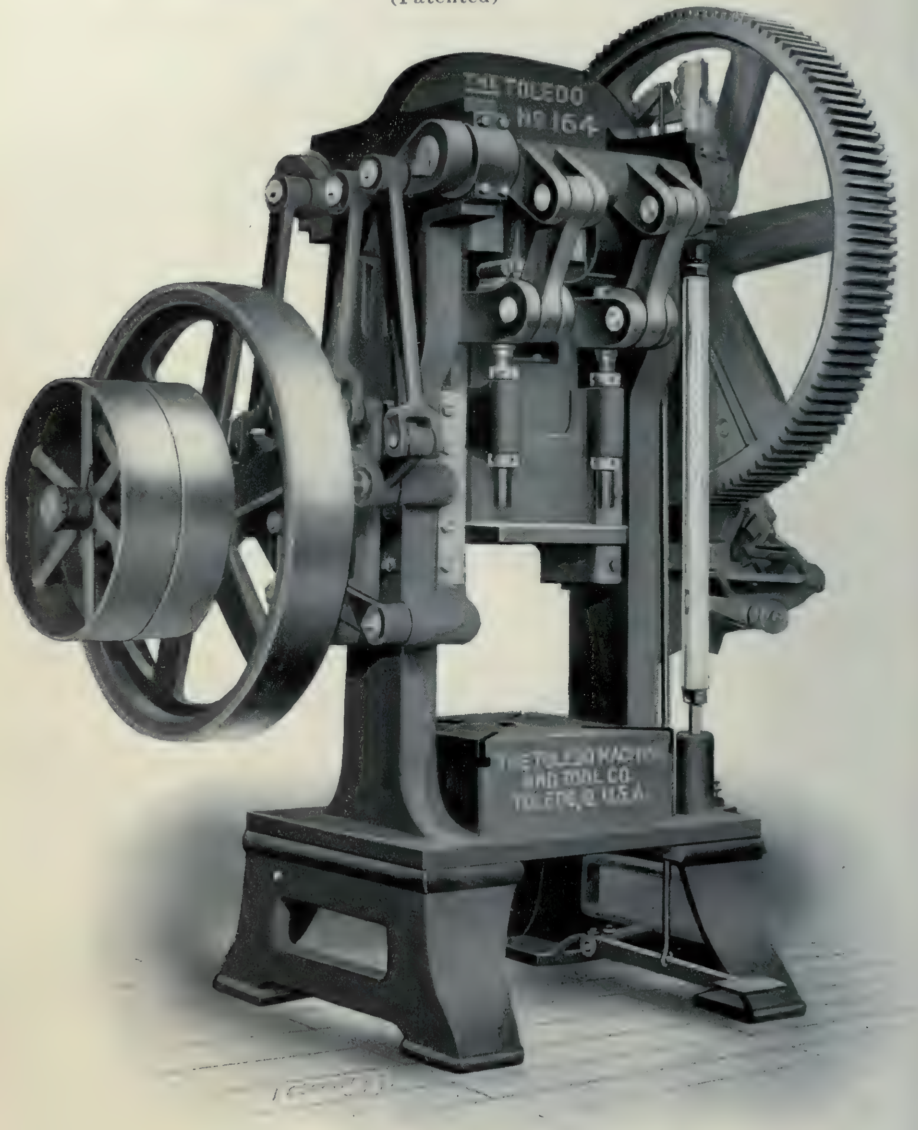
THIS is a popular size Press for drawing such parts as speedometer cases, seamless sprayer cases, the smaller sized oil can breasts, brass bed post knobs and similar work up to and including 11 inches diameter, 4½ inches deep.

The illustration shows our new form of adjustable bottom lift-out, operated by rods extending down from the blank holder and moving up and down with same. Total weight 11,000 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

The "Toledo" No. 164 Toggle Drawing Press

(Patented)

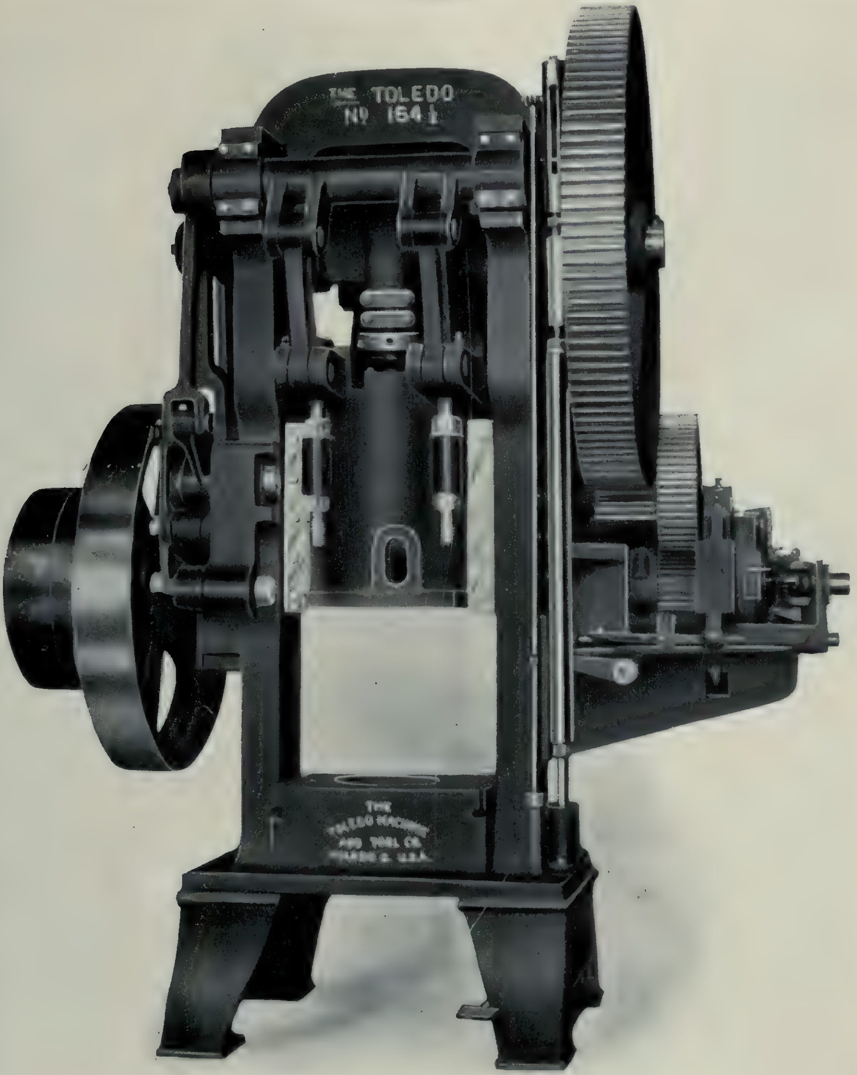


NUMBER 164 has capacity for drawing 10-quart milk cans, also wash bowls, pudding pans, oil can breasts, sauce pans, bucket and pot covers, cuspidors, coal hod bottoms, lamp and lantern parts, and a variety of automobile fittings and other work of a similar nature up to and including 14 inches in diameter, 6 inches deep. Total weight about 17,200 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word........

The "Toledo" No. 164½ Toggle Drawing Press, Geared

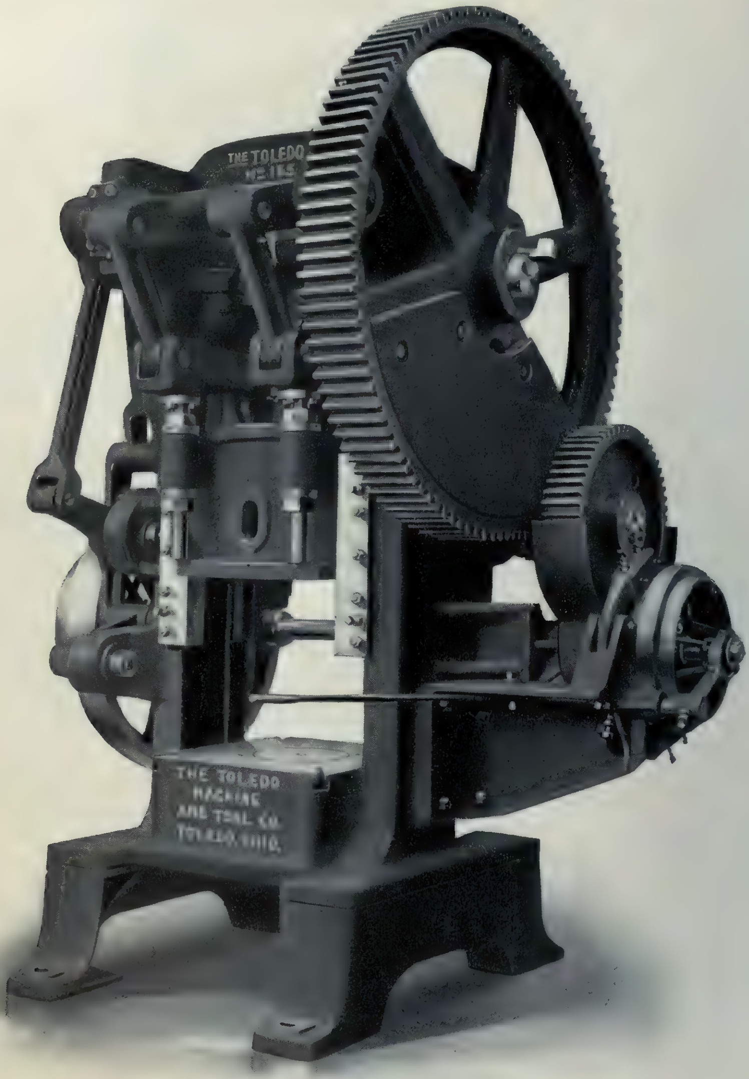
(Patented)



NUMBER 164½ Double Back Geared Toggle Drawing Press, with our new automatic friction clutch, is adapted to a heavier and deeper class of stamping than our No. 164. It is particularly suited for producing the medium and smaller sizes of deep stamped enameled ware, cuspidor parts and similar work. Total weight 20,000 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

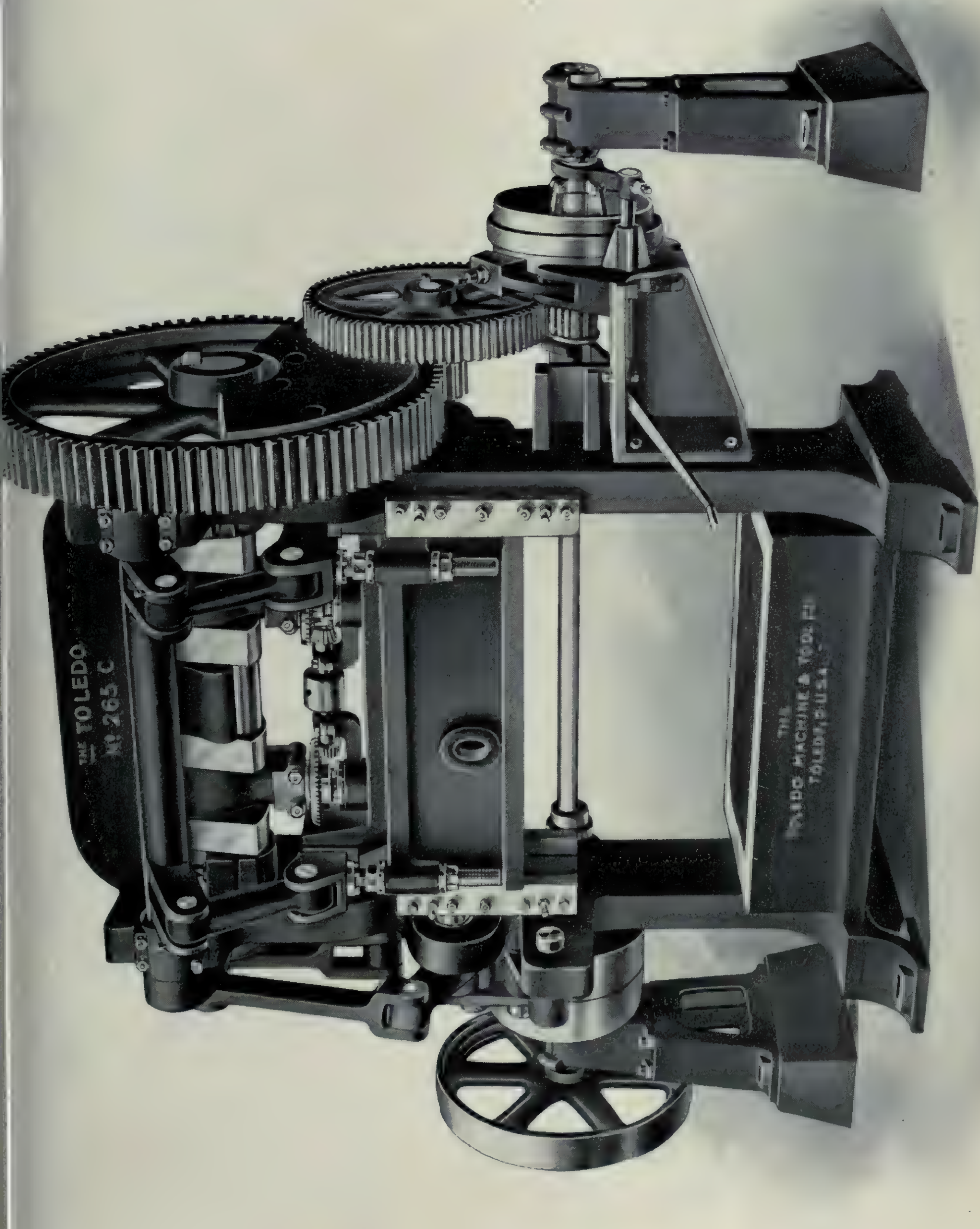
The "Toledo" No. 165 Toggle Drawing Press



THIS Press has capacity and is used for drawing electric sad iron shells, arc lamp and reflector casings, seamless steel lead kegs, automobile lamp shells, brass jardinieres, as well as for a wide range of enameled and plain tinware, including large size dish pans, and other work up to and including 20 inches diameter, 6½ inches deep. Total weight about 30,700 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word.........

The "Toledo" No. 265-C Double Crank Toggle Drawing Press.

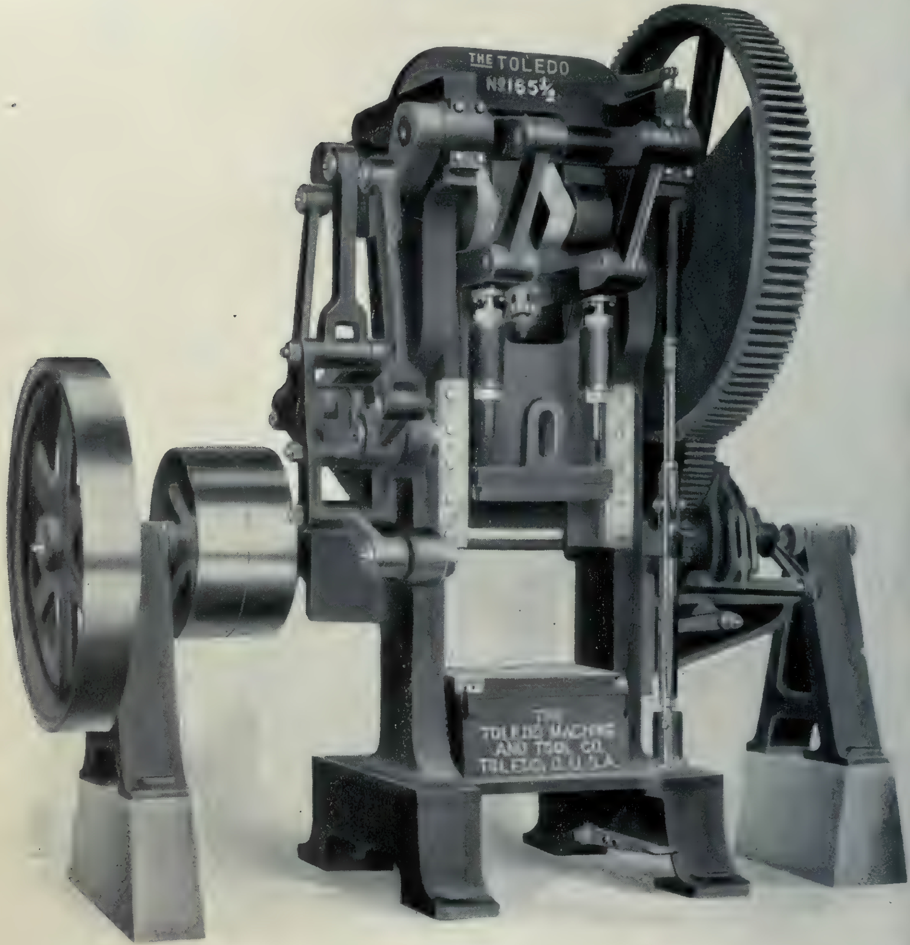


General description, pages 312, 313. Dimensions, page 314 and 326.

Code Word............

The "Toledo" No. 165½ Toggle Drawing Press

(Patented)

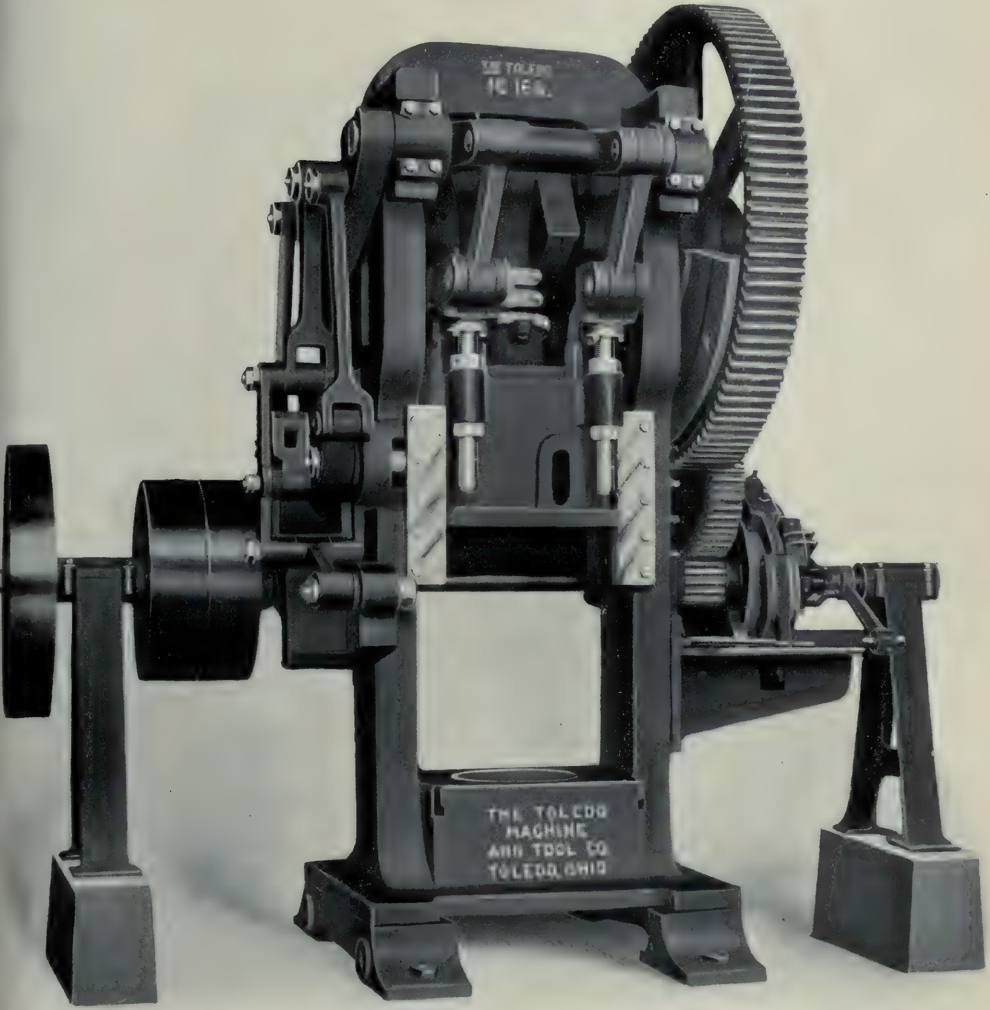


THIS illustration shows one of our medium heavy Toggle Drawing Presses, with unusually long stroke, for drawing deep, heavy brass shells, lamp and chandelier trimmings and parts, stamped steel, enameled ware and similar work up to and including 16 inches diameter, 9½ inches deep. Total weight about 34,100 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word........

The "TOLEDO" No. 166 Toggle Drawing Press

(Patented)



NUMBER 166 Double Geared Toggle Drawing Press is capable of taking care of a large percentage of the deep stamped shells used in the manufacture of deep stamped enameled and tinware, and is also used for the medium and lighter gauges of deep stamped steel parts for stoves and work up to and including 24 inches diameter, 8 inches deep. Total weight about 42,200 lbs.

General description, pages 312, 313. Dimensions, page 314. Code Word........

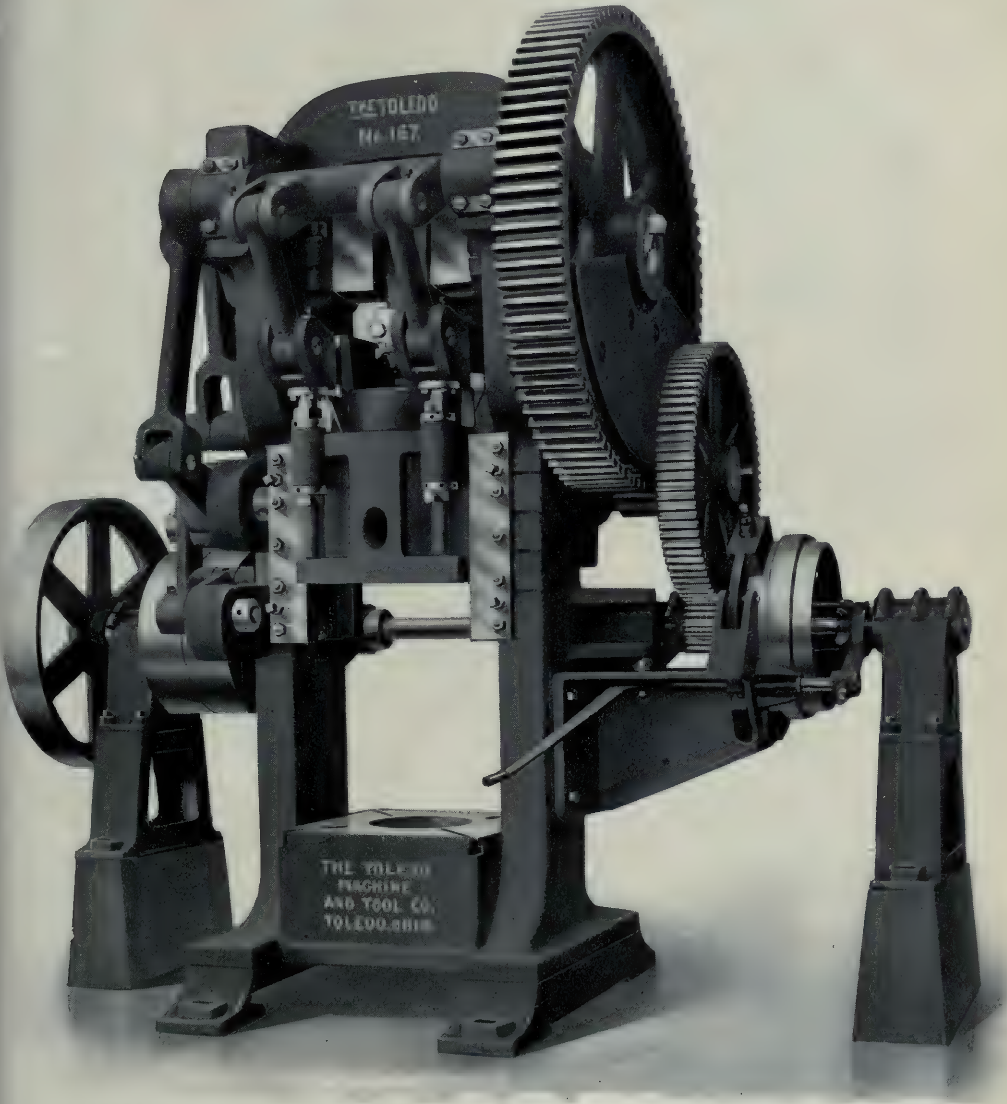
The "Toledo" Toggle Drawing and Deep Stamping Presses.

Number of Press Page of Catalogue	167 327	*167½ 328	168	*168¼	168½ 329	*168¾	*169	*169¼ 330	*169½ 331	*169¾
Code Word										
Price with bolster	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$....	$.....	$....
Price with extra bolster	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$....	$.....	$....
Weight, about ... pounds	49000	58600	55000	63000	78300	110000	140000	168000	185000	225000
Area of bed, F. to B., R. to L. ... inches	34 x 34	40 x 40	40 x 40	40 x 40	46 x 46	46 x 46	46 x 48	60x60	58x56	60x60
†Opening in bed, diameter ... inches	17	20	17	20	20	20	20	25	24	Other dimensions to suit extra heavy work.
Stroke of blankholder ... inches	13½	13½	18	18	18	18	14	18	18	
Stroke of plunger ... inches	21	21	26	29	26	26	20	26	26	
Adjustment of blankholder and plunger inches	8	8	8	8	8	8	8	8	8	
Distance bed to blankholder, stroke down and adjustment up ... inches	30	30	30	32	28	30	18	35	24	
Distance bed to plunger, stroke down and adjustment up ... inches	32	32	32	35	30	32	20	37	25	
Thickness of bolster plate ... inches	4	4½	4½	4½	4½	....	....	.....	....	
Thickness of blankholder plate ... inches	3	3	3½	3½	3½	....	....	.....	....	
Diameter of main gear ... inches	74	74	74	86	86	86	98	122	124	
Proportion of gearing, about	40:1	40:1	40:1	40:1	40:1	42:1	46:1	50:1	48:1	
Size of balance wheel ... inches	50 x 7	50 x 7	60 x 7	61 x 8	61 x 8	66x7	66x7	72x7	84 x 6	
Weight of balance wheel ... pounds	1250	1250	1400	2400	2400	2800	2800	3000	2900	
Size of belt wheel ... inches	30 x 8	30 x 8	38 x 8	38 x 8	38 x 8	42 x 8	42x8	42x10	50 x 10	
Speed of belt wheel ... R. P. M.	280	280	280	280	280	260	260	250	250	
Strokes of slide per minute	7	7	7	7	7	6	6	5	5	
Distance floor to center of shaft ... inches	118	122	124	125	135	140	130	156	142	
Floor space over all, F. to B., R. to L. ... inches	36 x 166	98 x 182	98 x 172	115x175	106x190	110x200	118x204	140x205	140x222	
Floor space of base, F. to B., R. to L. . inches	70 x 58	96x150	78x115	90x121	84 x 64	84x148	94x156	100x167	100x176	
Diameter of largest blank that can be drawn.	30	34½	38	34½	44	44	42x44	56	54 x 50	
Diameter of largest punch that can be used..	24	27	27	27	31	31	30x34	41	40 x 36	
Will draw in depth and lift out up to	10	10	12½	24	12½	12½	9½	12½	12½	

*Tie rod construction.
†Bed solid unless otherwise ordered.

The "TOLEDO" No. 167 Toggle Drawing Press.

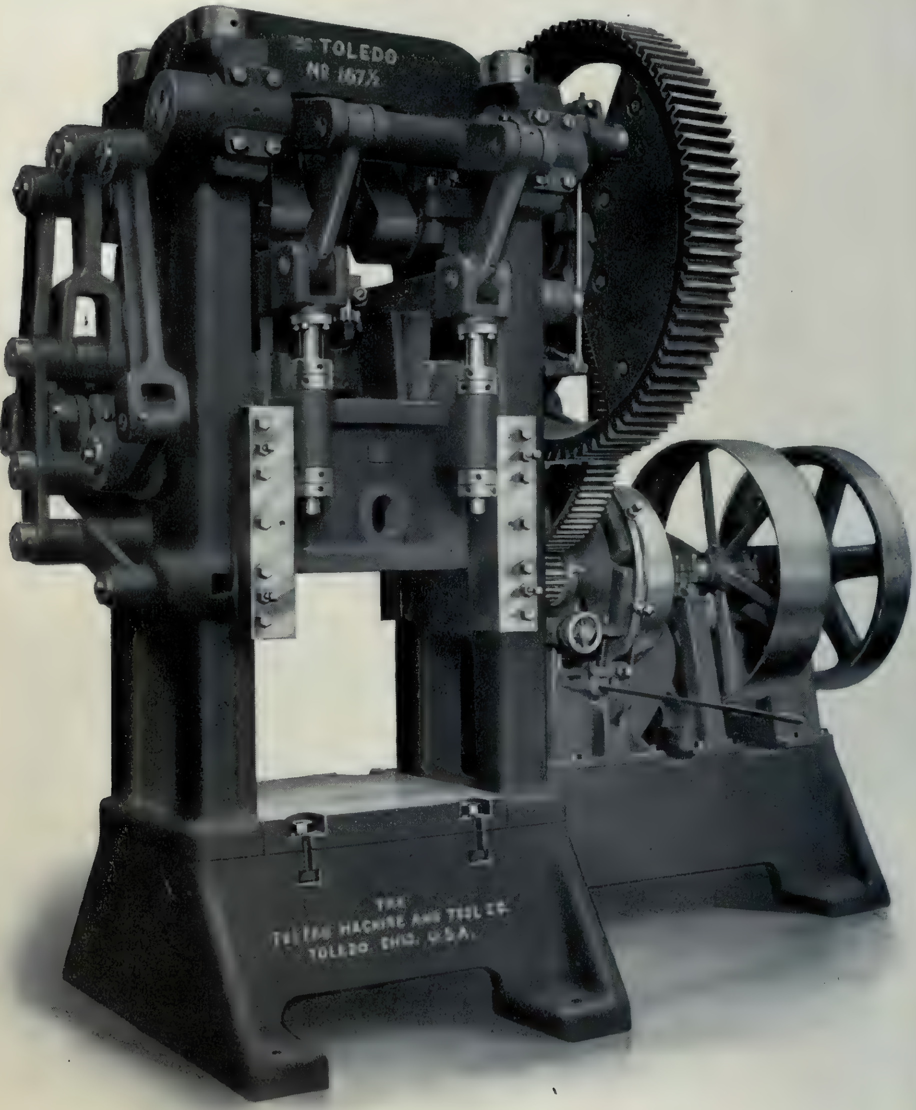
(Patented)



THIS illustration shows Press No. 167 which has capacity for drawing practically every standard article now made by tinware manufacturers, including 30-quart dish pans; also for black iron and enameled ware, cylinder heads for kitchen boilers and soda fountains, ash and garbage can bottoms and covers, stove bases, tops and covers of No. 16 gauge and lighter metals, and for work up to and including 24 inches diameter, 10 inches deep. Modifications can be made to suit special work. Total weight above Press about 49,000 lbs.

General description, pages 312, 313. Dimensions, page 326. Code Word.........

The "Toledo" No. 167½ Toggle Drawing Press



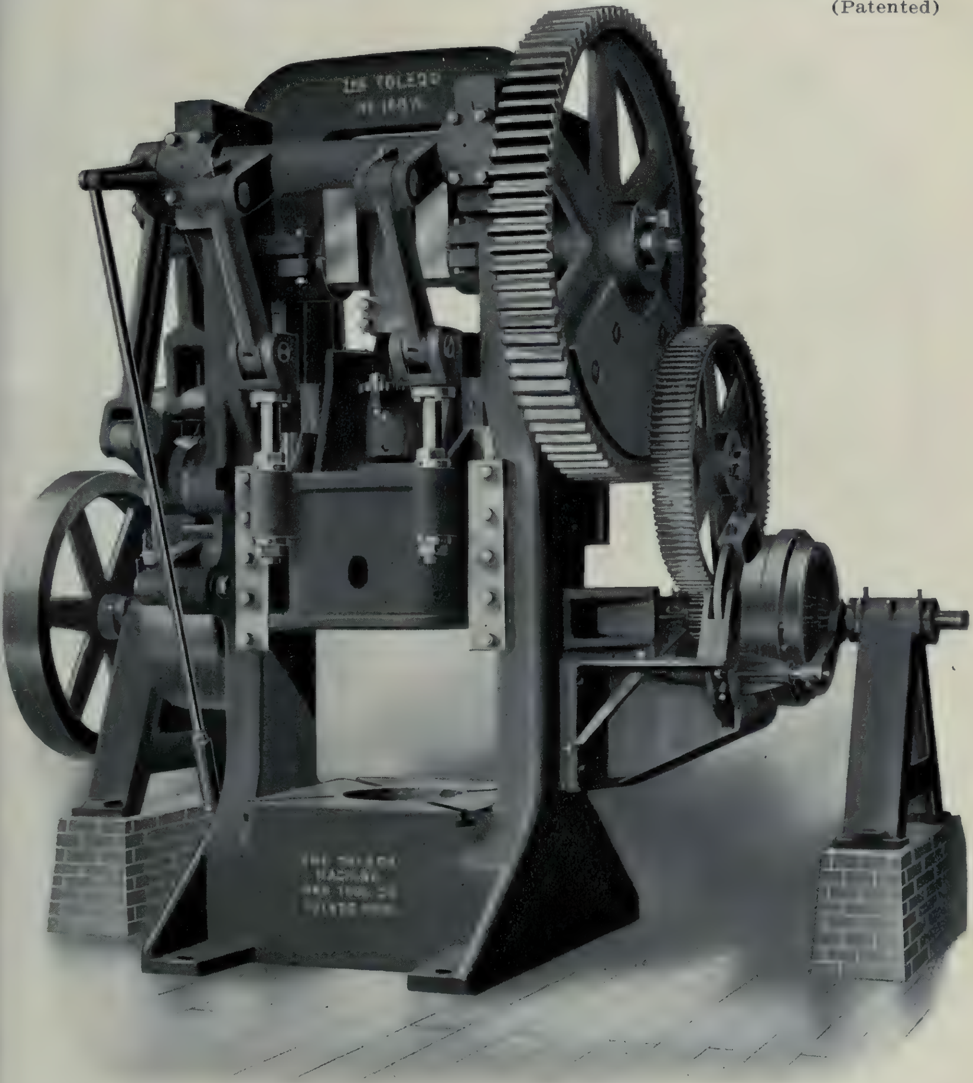
THIS illustration shows a heavy type of Toggle Drawing Press, with massive built-up frame, reinforced with heavy steel tie rods. The friction clutch is rigidly supported in a massive outboard bearing with wide ring-oiling bearings throughout.

This Press is popularly used for drawing cream separator shells, brake drums, gear casing and axle housing covers, and other deep stamped work of the heavier gauges of sheet steel. Total weight about 58,600 lbs.

General description, pages 312, 313. Dimensions, page 326. Code Word.........

The "Toledo" No. 168½ Toggle Drawing Press

(Patented)

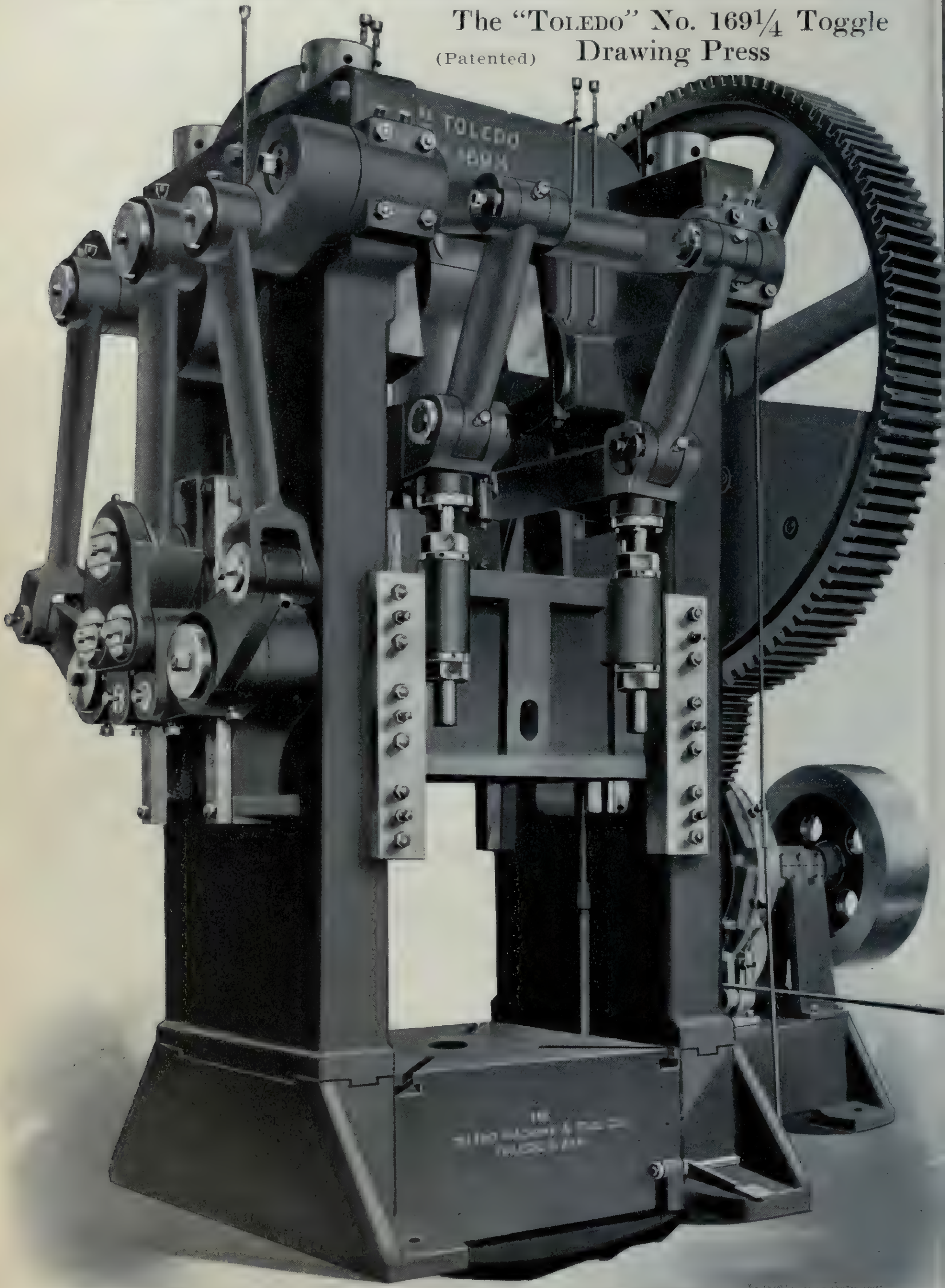


THIS illustration shows one of our heavier patterns of Toggle Drawing Presses, with capacity for drawing steel boxes for gum and other vending machines, automobile gear cases and brake drums, steel trays, sinks, tote-boxes, and other steel stampings of the medium heavy gauges of steel and other materials requiring a powerful rigid press. Will handle work up to and including 31 inches diameter, 13½ inches deep. Total weight about 78,300 lbs.

General description, pages 312, 313. Dimensions, page 326. Code Word.........

The "Toledo" No. 169¼ Toggle Drawing Press

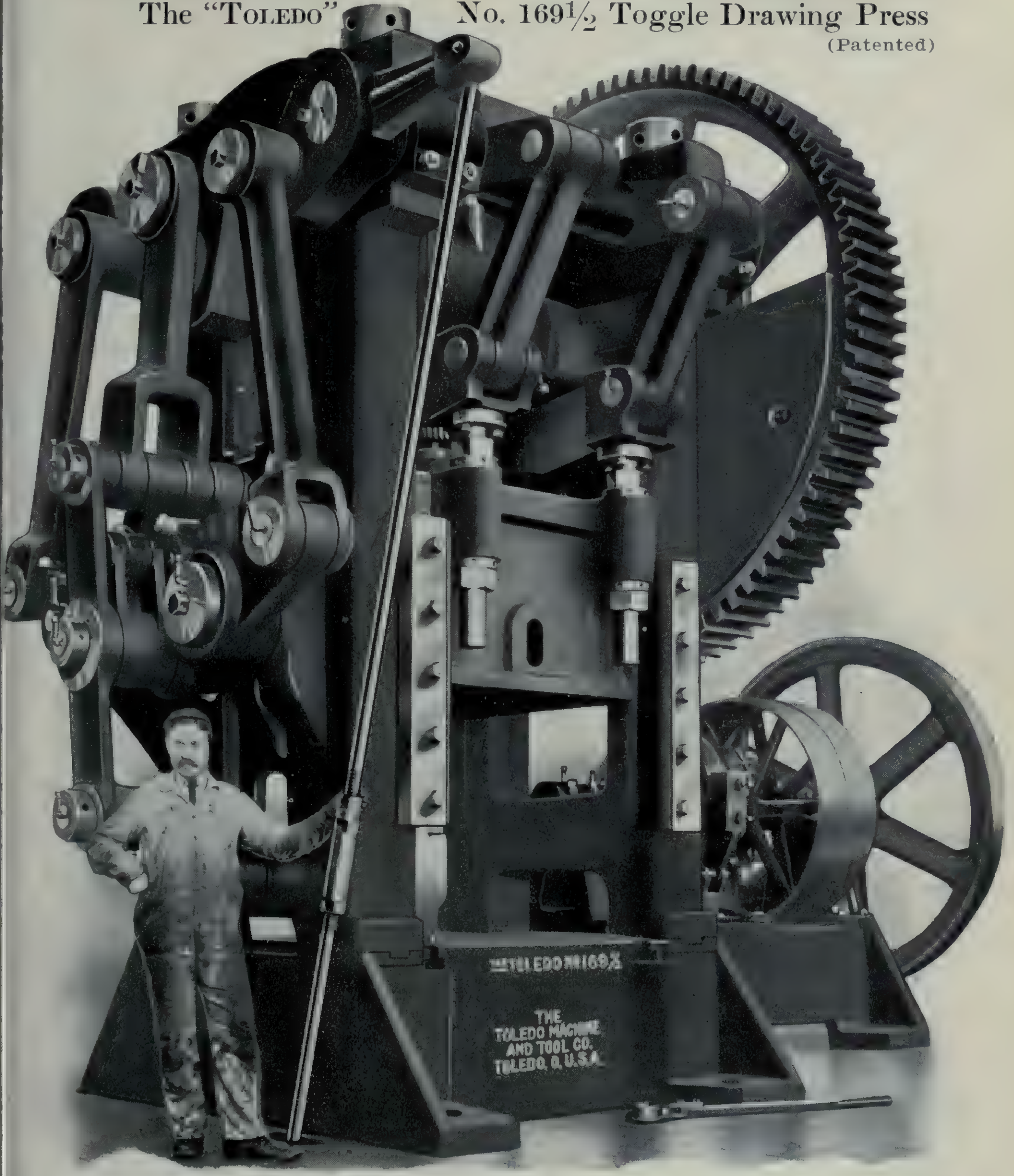
(Patented)



General description, pages 312, 313. Dimensions, page 326. Code Word.........

The "Toledo" No. 169½ Toggle Drawing Press

(Patented)

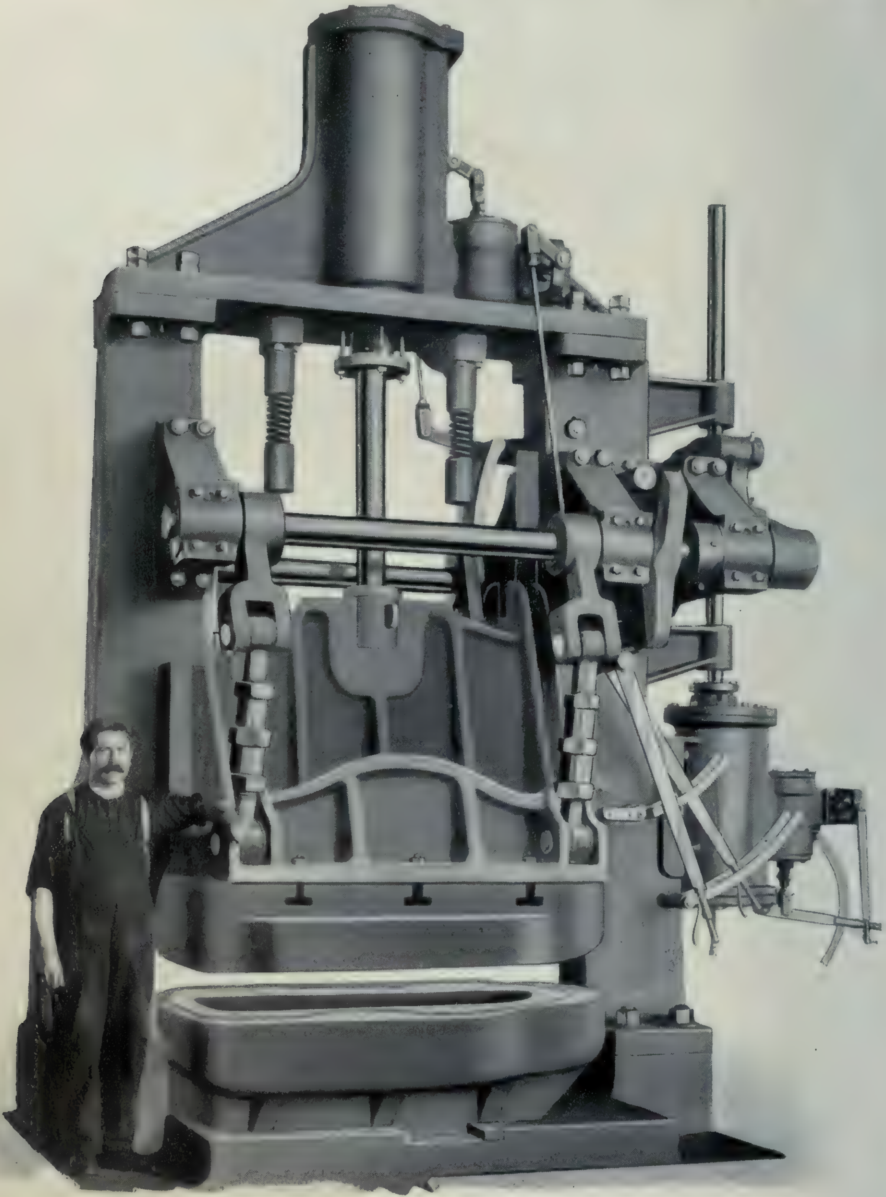


THIS illustration represents a large size, very powerful Toggle Drawing Press. This Press can be furnished with either belt or direct-connected motor or arranged for belt drive. A powerful friction clutch gives practically complete control of the machine. Adapted to cold stamping or drawing deep shells of heavy steel plate up to and including ⅜-inch thick; also heavy automobile brake drums, rear axle housing, cases and frames for electric motors and gear guards, steel bowls or kettles, road scrapers, wheelbarrow trays, etc. Total weight about 185,000 lbs.

General description, pages 312, 313. Dimensions, page 326. Code Word........

The "Toledo" Steam Actuated Toggle Drawing and Stamping Press

(Patented)



THIS illustration shows our 96-Inch Drawing Press, with capacity for sheets 60 x 94 inches by ⅛ inch thick, and for stampings 17½ inches deep. Intended for bath tubs, steel road and drag scrapers and similar heavy work.

Code Word, as shown............

The "Toledo" Open Back Cam Drawing Presses.

Number of Press	23	24	25	26	27	28	29	29½	29¾
Page of Catalogue	334	335	336	337	....	....	....	....	....
PLAIN PRESS									
Price with bolster plate	$.....	$.....	$.....	....	....	....	....	....	....
Price of extra bolster	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	3000	4400	7200	....	....	....	....	....	....
Area of bed and bolster, F. to B., R. to L. ... inches	12 x 21	14 x 23	16 x 28	22 x 37	22 x 40	22 x 42	28 x 48	28 x 52	36 x 57
Opening in bed, diameter ... inches	6	8	10	12	14	14	16	18	18
Width of opening in back ... inches	12	14	19	26	28	30	34	38	41
Distance back from center of slide ... inches	6	7	8½	10½	8½	8½	8½	8½	8½
*Standard stroke of blank holder ... inches	2	2	2½	2½	2½	3	3	4	5
*Standard stroke of plunger ... inches	4	4	5	5	5	6	6	8	10½
Adjustment of blank holder ... inches	1½	2	2	3	3	3½	4	4	4
Adjustment of plunger ... inches	2	3	3	3	3	3½	4	4	4
*Distance bed to blank holder, stroke down, adj. up inches	8	9	11	13	13	14	15	17	19
*Distance bed to plunger, stroke down, adj. up ... inches	9	10	12	14	14	15	16	18	20
Thickness of bolster plate ... inches	1½	1¾	2	2½	2½	2½	2½	3	3
Size of flywheel ... inches	32x5½	36x5½	42x6½	....	....	....	....	....	....
Weight of flywheel ... pounds	500	750	1050	....	....	....	....	....	....
Speed of flywheel ... R. P. M.	90	90	80	....	....	....	....	....	....
Height from floor to shaft center ... inches	64	70	75	85	88	92	96	105	112
Floor space of legs, F. to B., R. to L. ... inches	45 x 24	48 x 26	52 x 32	54 x 42	54 x 46	60 x 50	60 x 50	60 x 60	65 x 64
Floor space over all, F. to B., R. to L. ... inches	52 x 39	58 x 44	64 x 54	....	....	....	....	....	....
†Diameter of largest blank that can be cut or drawn	9	11	15	21	....	....	28	....	32
†Diameter of largest shell that can be drawn	5	6	8½	7	....	....	10	....	27
†Depth of deepest shell that can be drawn	1¾	1¾	2¼	2¼	2¼	2¾	2¾	3¾	4¾
GEARED PRESS									
Price with bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	3500	4900	7900	12000	17000	22800	29000	43000	59000
Proportion of gearing, about	6:1	6½:1	7:1	9:1	9:1	9:1	9:1	22:1	26:1
Diameter of gear ... inches	32	35	44	61	66	70	74	62	74
Size of balance wheel ... inches	26x3½	28 x 4	30 x 5	38 x 6	38 x 6	42x6½	50 x 7	50 x 7	42 x 8
Weight of balance wheel ... pounds	225	300	400	800	800	1000	1250	1250	1700
Size of belt wheel ... inches	26x3½	28 x 4	30 x 5	24 x 5	24 x 6	28 x 6	32 x 6	28 x 6	32 x 8
Speed of belt wheel ... R. P. M.	270	290	280	300	300	270	250	300	300
Strokes of slide per minute	45	45	40	35	35	30	27	14	12
Floor space over all, F. to B., R. to L. ... inches	52 x 42	58 x 57	64 x 64	77 x 80	80 x 90	86x100	92x110	96x148	100x170

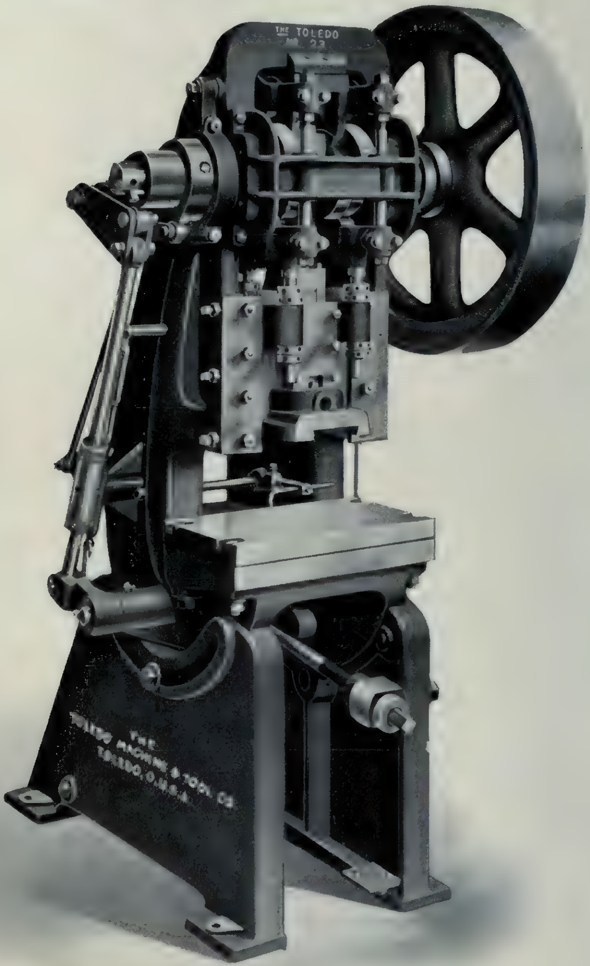
Inclinable (Nos. 23–26)

Double geared with Friction Clutch (Nos. 29½–29¾)

*These can be changed.

†Are not obtainable at the same time.

The "Toledo" No. 23 Cam Drawing Press



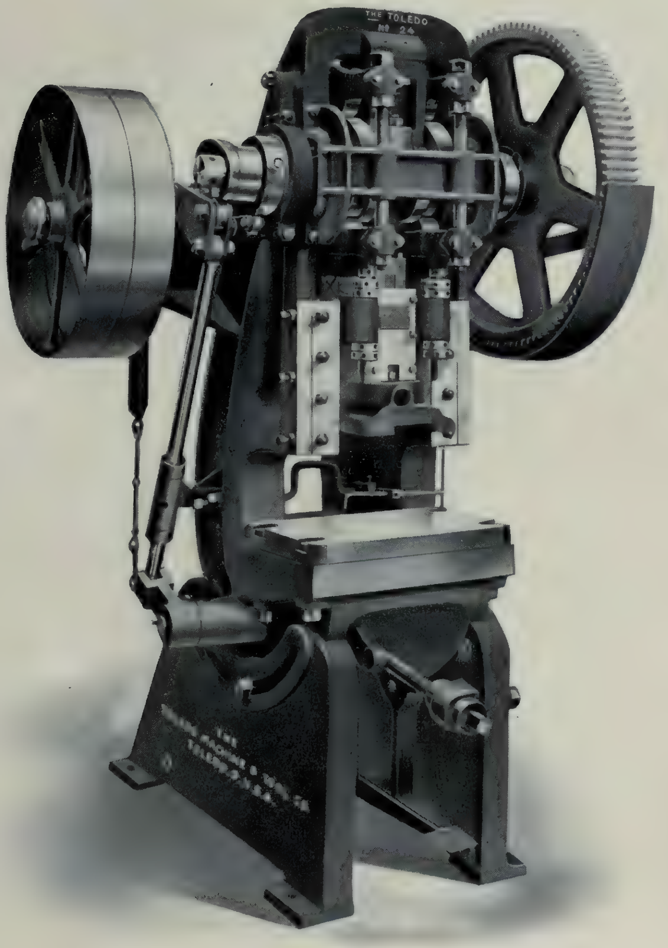
THE above illustration shows one of our smaller size, open back inclinable, double action, Cam Drawing Presses. This Press is adapted to cutting, drawing, stamping and embossing in one operation, such work as toy parts, covers and bottoms of baking powder, spice and mustard cans, grease and lard pails, harness oil-can tops and similar work.

The swinging arms for raising and lowering the blank holder or outer slide have been entirely eliminated, the outer slide being raised and lowered through the action of cams attached to the crank shaft, and bearing, above and below, on rolls operating in a double pair of yokes to which the outer slide is attached by means of four heavy steel rods, as shown in illustration.

Press can be furnished plain or geared as required. Weight about 3,000 lbs.

Dimensions, page 333. Code Word...........

The "TOLEDO" No. 24 Cam Geared Drawing Press

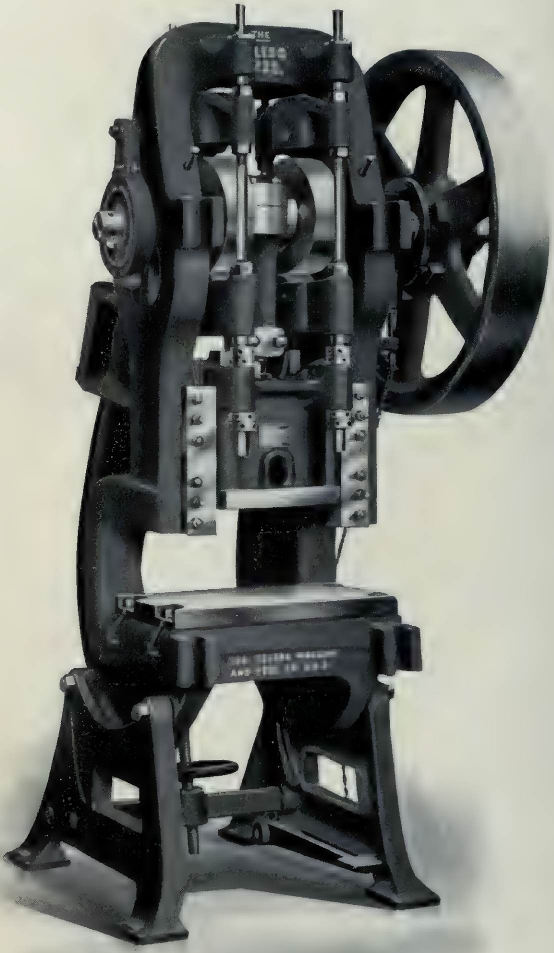


THE No. 24 Press shown above is of the same construction as the No. 23 illustrated on preceding page, except larger and heavier, and of the geared type.

This size Press is widely used for producing light gauge stamped metal parts of cream separators, sewing machines, aluminum receptacles, etc. Weight complete about 4,900 lbs.

Dimensions, page 333. Code Word...........

The "Toledo" No. 25 Open Back, Inclinable, Double Action Cam Drawing Press.

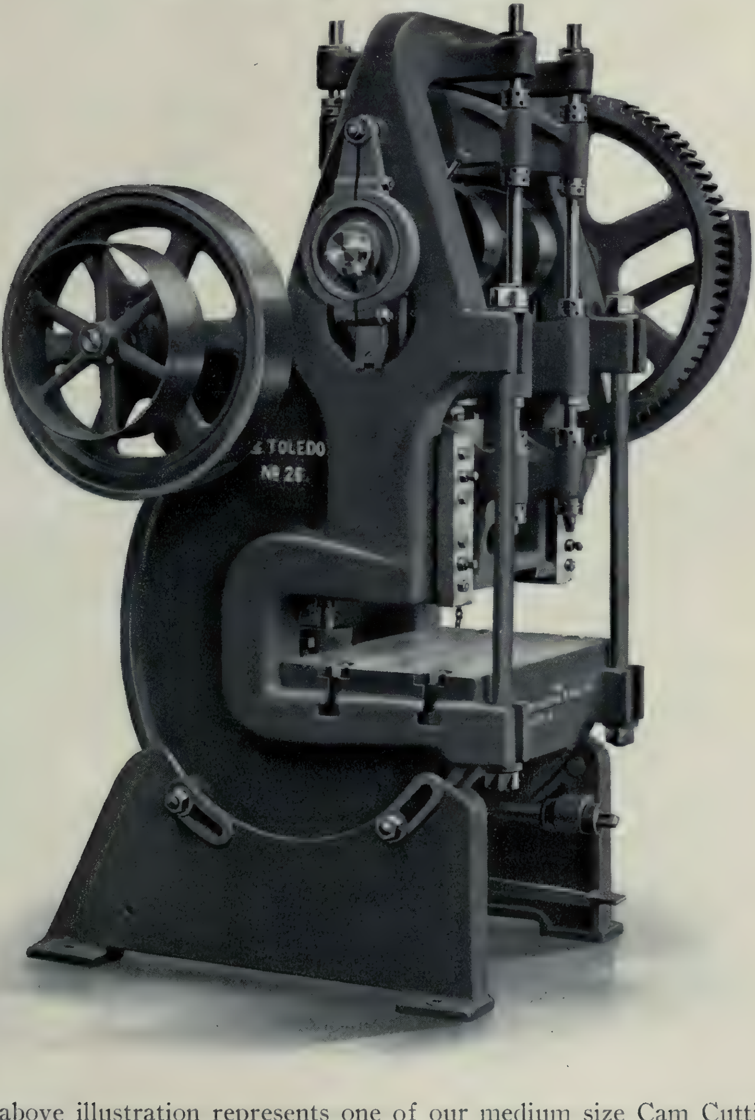


PRESS illustrated above is similar in design to the one on the preceding page, but proportionately larger and heavier. Our No. 25 Cam Drawing Press is used for cutting and forming chandelier, oil stove, automobile and work of similar nature in the lighter gauges of metal.

This and the smaller sized Presses of this type are fitted with the "Toledo" Pin Clutch. Weight complete about 7,200 lbs.

Dimensions, page 333. Code Word............

The "Toledo" No. 26 Open Back, Inclinable, Double Action Cam Drawing Press, Geared.



THE above illustration represents one of our medium size Cam Cutting and Drawing Presses of the geared type. This Press has capacity for cutting and forming in one operation such work as mail boxes, electrical cut-out boxes, cream separator pans and similar work of about 20-gauge steel and lighter. This and the larger sized presses are furnished with the "Toledo" Three-Engagement Block Clutch, although they can also be fitted with the "Toledo" Friction Clutch, if desired.

The steel tie-rods shown fitted to Press are removable and used only on extra heavy work. Weight approximately 12,000 lbs.

Dimensions, page 333. Code Word............

The "Toledo" Straight Side Cam Drawing Presses

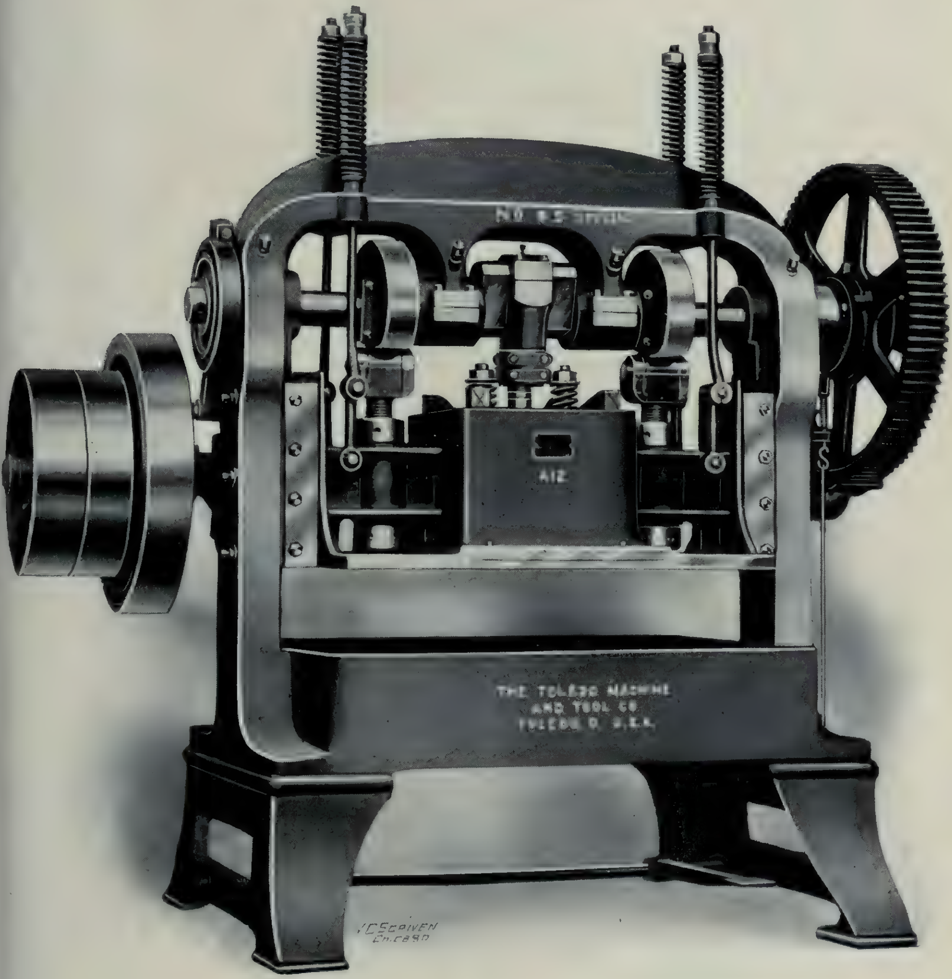
Number of Press	63	64	65	65 Sp.	66	67	68	69	69½	69¾
Page of Catalogue	....	....	....	339	....	340	341	....	....	....
PLAIN GEAR Code Word										
Price with bolster plate	$.....	$.....	$.....	$.....	....	....	....	....	....	....
Price of extra bolster	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	4750	5900	7300	....	....	....	....	....	....	....
Area of bed and bolster, F. to B., R. to L. inches	14 x 12	16 x 14	18 x 16	....	20 x 18	22 x 20	25 x 24	28 x 28	32 x 32	36 x 36
Opening in bed, diameter ... inches	5	6	7	....	8	10	12	14	16	18
Distance between housings ... inches	13	15	17	60	19	21	25	29	33	37
*Standard stroke of blank holder ... inches	2	2	2½	4	2½	2½	3	3	4	5
*Standard stroke of plunger ... inches	4	4	5	7	5	5	6	6	8	10½
Adjustment of blank holder ... inches	1½	2	2	1½	3	3	3½	4	4	4
Adjustment of plunger ... inches	2	3	3	2½	3	3	3½	4	4	4
*Distance bed to blank holder, str. down, adj. up	8	9	11	12	13	13	14	15	17	19
*Distance bed to plunger, stroke down, adj. up	9	10	12	16	14	14	15	16	18	20
Thickness of bolster plate ... inches	1½	1¾	2	....	2½	2½	2½	2½	3	3
Size of flywheel ... inches	32x5½	36x5½	42x6½	....	....	....	....	....	....	....
Weight of flywheel ... pounds	500	750	1050	....	....	....	....	....	....	....
Speed of flywheel ... R. P. M.	90	90	80	....	....	....	....	....	....	....
Height floor to shaft center ... inches	62	66	70	73	76	82	88	94	102	110
Floor space of legs, F. to B., R. to L.	....	....	....	63 x 72	....	42 x 40	50 x 44	....	....	....
Floor space over all, F. to B., R. to L.	....	....	....	....	....	....	....	....	....	....
†Diam. of largest bl'k that can be cut or drawn	9	11	13	30 x 51	14	16	20	23	27	30
†Diameter of largest shell that can be drawn	....	....	....	18 x 18	....	7	14	....	....	....
†Depth of deepest shell that can be drawn	1¾	1¾	2¼	3½	2¼	2¼	2¾	2¾	3¾	4¾
GEARED PRESS Code Word										
Price with bolster plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	5200	6400	8000	13000	9200	11000	15600	24000	35000	50000
Proportion of gearing, about	6:1	6½:1	7:1	6½:1	9:1	9:1	9:1	9:1	22:1	26:1
Diameter of (main) gear ... inches	32	35	44	42	52	61	71	74	62	74
Size of balance wheel ... inches	26x3½	28 x 4	30 x 5	34x5½	38 x 6	44 x 6	49 x 6	50 x 7	50 x 7	42 x 8
Weight of belt wheel ... pounds	225	300	400	600	800	900	1000	1250	1250	1700
Size of belt wheel ... inches	26x3½	28 x 4	30 x 5	24 x 5	24 x 5	24 x 6	28 x 6	32 x 6	28 x 6	32 x 8
Speed of belt wheel ... R. P. M.	270	290	280	230	300	300	270	240	300	300
Strokes of slide per minute	45	45	40	35	40	35	30	27	14	12
Floor space over all, F. to B., R. to L. ... inches	....			58x112		68 x 80	80 x 85			

*These can be changed.

†Are not obtainable at the same time.

Double Geared
With Friction Clutch

The “Toledo” No. 65, Special, Double Crank Cam Drawing Press, Geared

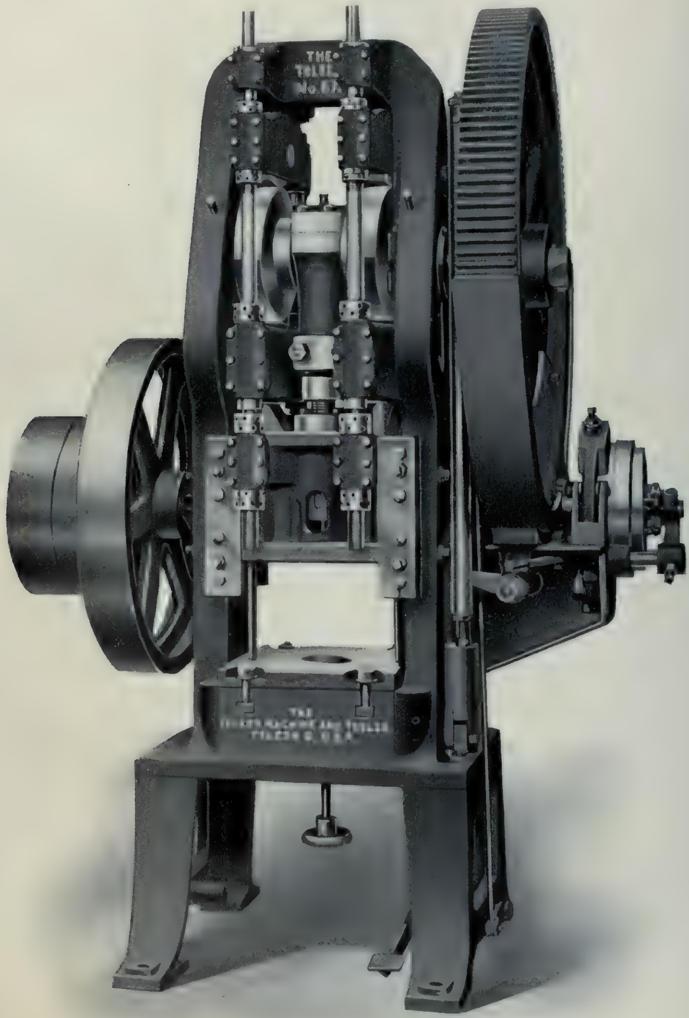


THIS Press is specially suited for forming pressed metal shingles, steel ceilings and sidings for buildings, for cornice work and many similar purposes; for making various articles from sheet metal, such as stoveboards, etc.

Press is powerfully built and has capacity for a wide range of work as mentioned above. Width between uprights, 60 inches. Total weight about 13,000 lbs.

Dimensions, page 338. Code Word............

The "Toledo" No. 67 Straight Sided Double Action Cam Drawing Press, Geared.

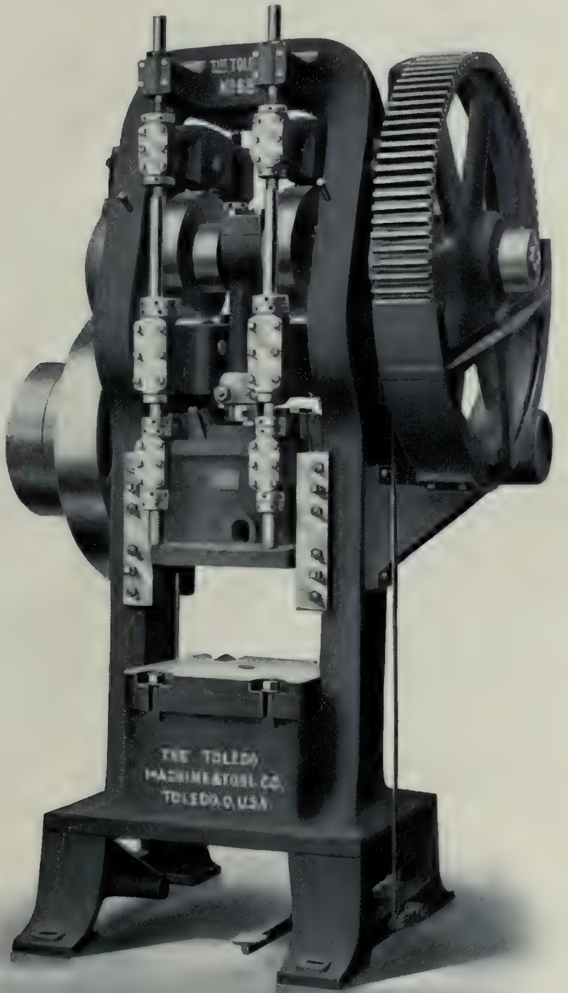


OUR Straight Sided Double Action Cam Drawing Presses, as illustrated above, have the same construction for plunger and blank holder as our Open Back Cam Drawing Presses. The No. 67, shown in the accompanying illustration, is used for cutting and drawing alarm clock cases, aluminum fish floats and other deep drawn shells. Weight about 11,000 lbs.

Press can be furnished either with "Toledo" Three-Engagement Block Clutch or "Toledo" Patented Friction Clutch.

Dimensions, page 338. Code Word............

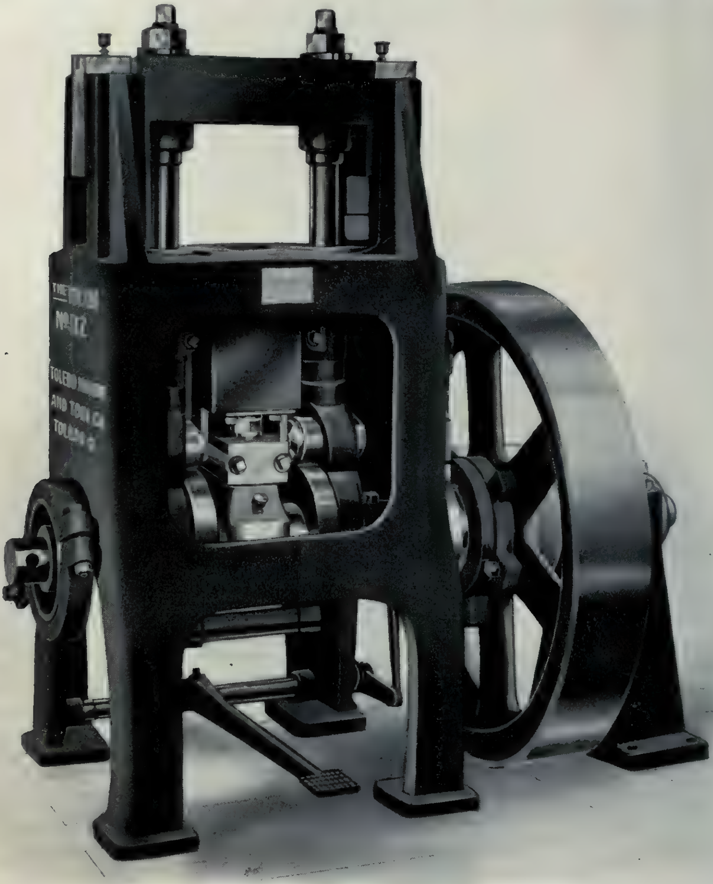
The "Toledo" No. 68 Straight Sided Cam Drawing Press, Geared.



THE No. 68 Straight Sided Cam Drawing Press here shown is similar in design, but a size larger than the Press shown on the preceding page. The No. 68 Press is used for cutting and drawing scale dials and trays, scoops, heavy clock cases and similar work of medium heavy sheet metal. Weight about 16,000 lbs.

Dimensions, page 338. Code Word...........

The "Toledo" No. 112 Inverted Double Action Cam Press



THIS cut illustrates our Inverted Cam Drawing and Forming Press. The slide and shaft being inverted, the Press is adapted for forming, forging or swaging hot or cold rail-bonds, and work of a similar nature.

Where double action or combination dies would be required in an ordinary power press, and where this form of die would be inconvenient, the work in question can be performed more rapidly and in a more practical manner with this type of Press.

Number of Press	112	112½
Price	$.....	$.....
Weight, about ....pounds	3200	4900
Width between upright cam rods....inches	10	10
Distance bed to cross bar, stroke and adj. up ....inches	3	3
Distance bed to plunger, stroke and adj. down ....inches	5	6
Stroke of cross bar ....inches	2½	2⅜
Stroke of plunger ....inches	1¼	1½
Diameter and face of balance wheel ....inches	38 x 6	42 x 6½
Weight of balance wheel ....pounds	850	1050
Speed of balance wheel ....R. P. M.	100	100
Floor space over all, F to B., R. to L. ....inches	38 x 56	42 x 64

"Toledo" Spinning Lathes

THESE Lathes are used for spinning the various forms or shapes where the small quantity required will not warrant the installation of presses and dies.

They are also specially suited for burnishing, as well as trimming, beading and wiring all classes of work produced on our Toggle Drawing Presses. We have furnished these Lathes to many of the leading manufacturers of enameled ware, ornamental brass work, aluminum kitchen utensils and other aluminum ware, electrical and gas fixtures, automobile lamps and other parts, cream separators, milk cans, etc.

The spindles are made of high-carbon hammered steel, operating in unusually long and rigid bronze bushed bearings. The large, substantial shoulder on front end of spindle gives ample support for the various forms of spinning and trimming chucks which may be used. All bearings throughout are carefully scraped and fitted, and ample means provided for a constant unchecked lubrication.

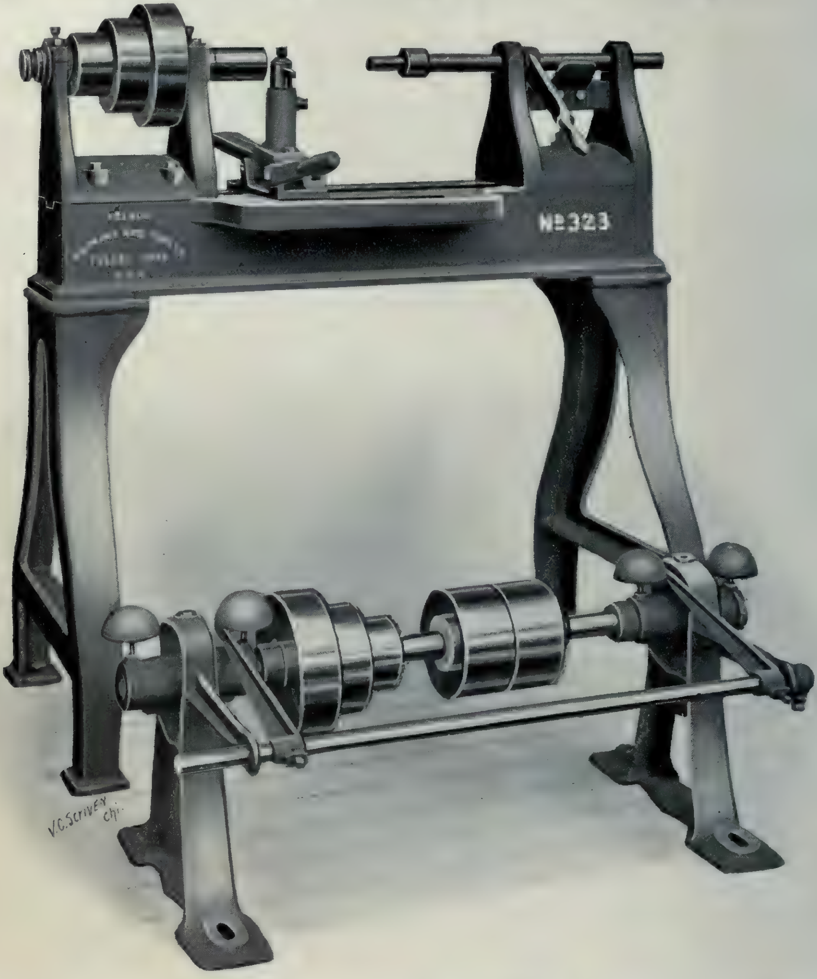
The tail-stock is fitted with a lateral adjustment adapting the machine to operating chucks for bulging and other special work. These tail-stocks are also provided with quick-acting hand-wheel rack and pinion movement, with positive hand-wheel locking mechanism.

The compound rest and anti-friction burnishers are of the latest and most convenient type, with universal adjustment for a wide range of work. The anti-friction burnisher is held in a holder of powerful construction and fitted with anti-friction roller bearings.

The tilting rest and holders for beading or curling rolls and trimming cutters, present new, desirable, durable features, which are the result of long practice on work of this character.

Number of Machine	323	324	325	326	328
Old Number	3	4	5	6	
Page of Catalogue	344	345	346	347	....
Price without attachments	$....	$....	$....	$....	$....
Code word					
Price of compound rest only	$....	$....	$....	$....	$....
Code word					
Price of anti-friction burnisher	$....	$....	$....	$....	$....
Code word					
Price of tilting rest only	$....	$....	$....	$....	$....
Code word					
Price of trimming attachment only	$....	$....	$....	$....	$....
Code word					
Price of wiring attachment only	$....	$....	$....	$....	$....
Code word					
Price of trimming attachment for light shells	$....	$....	$....	$....	$....
Code word					
Price of trimming attachment for heavy shells	$....	$....	$....	$....	$....
Code word					
Price of bulging chuck carrier on tail spindle	$....	$....	$....	$....	$....
Code word					
Weight complete, about ..... pounds	600	1000	1900	3400	9000
Length of bed ..... inches	42	54	66	80	97
Swing over bed ..... inches	16	20	24	30	32
Swing over rest ..... inches	13	16	20	24	24
Diameter of pulleys on spindle inches	4-6-8	6-8-10	8-10-12	8-10 12-14	12-16-20
Face of cones ..... inches	2	2½	3	4	5
Size of tight and loose pulleys on counter shaft ..... inches	8 x 2	10 x 2½	12 x 3	16 x 4	20 x 6
Speed of counter shaft ..... R. P. M.	350	300	300	200	200
End movement of tail spindle inches	5	8	8	14	13
Floor space of legs, F. to B., R. to L. ..... inches	23 x 44	25 x 58	28 x 70	30 x 84	32 x 102
Floor space over all, F. to B., R. to L. ..... inches	28 x 44	32 x 58	38 x 80	44 x 96	54 x 114

The "Toledo" No. 323 Spinning Lathe, with Tilting Rest



THIS Lathe is designed for spinning, trimming, flanging, curling and wiring edges; for burnishing pressed, stamped or drawn work in brass, copper, tin, aluminum, steel or black iron.

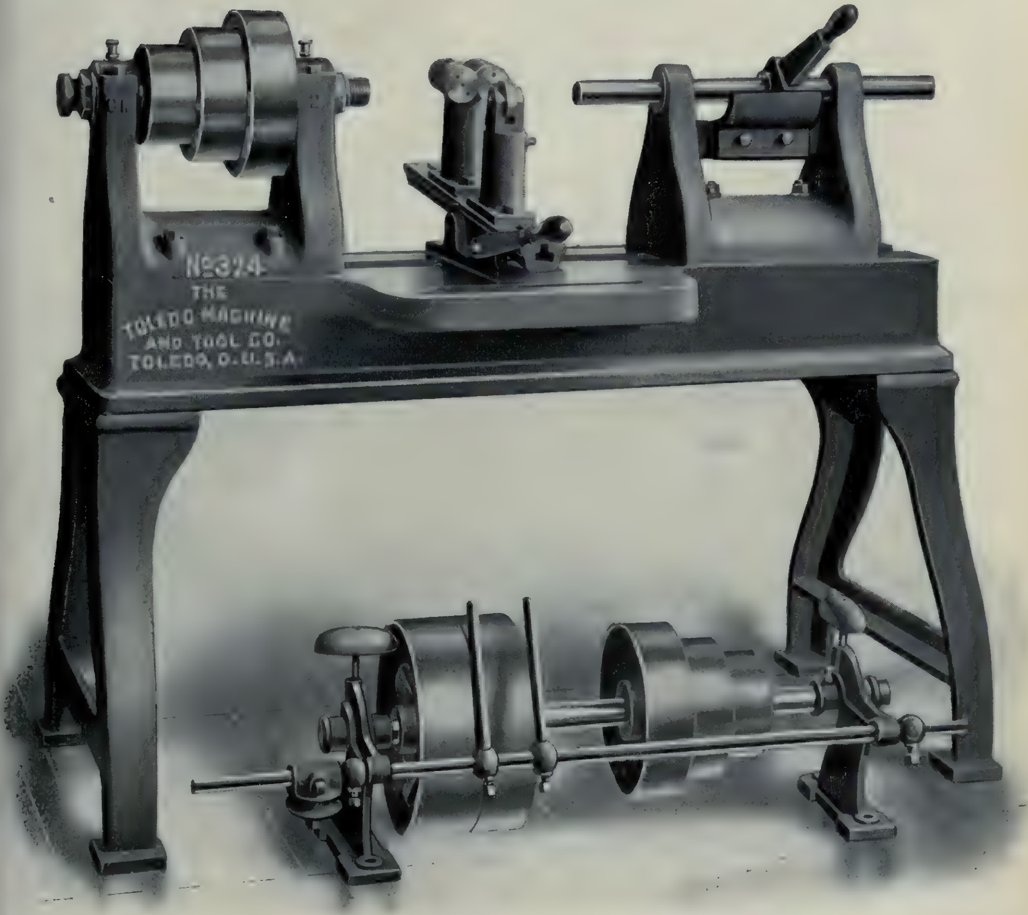
Lathe can be provided with tilting, burnishing, spinning, curling, trimming and wiring attachments when ordered. When provided with T-Rest, hand spinning from the flat may be done. All our Lathes have hammered steel spindles, bronze bushed bearings and compound slide rests which are very heavy. We supply these Lathes for inside or outside spinning, and either right or left-handed as desired.

The hardened steel burnishing roll operates in anti-friction bearings which prevent heating.

By use of the tilting rest, shown above, all but the largest sizes of articles can be trimmed and wired at one setting. Total weight about 600 lbs.

General description, page 343. Dimensions, page 343. Code Word...........

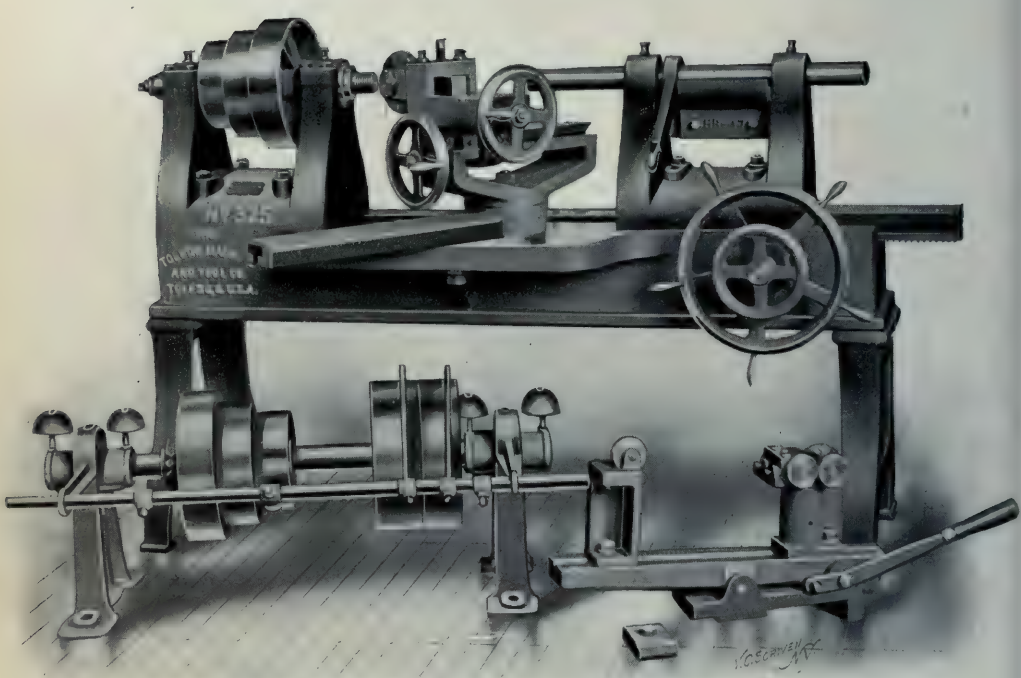
The "Toledo" No. 324 Spinning Lathe



THIS illustration shows Lathe with plain tilting attachment, fitted with beading or curling roll and trimming cutters, and with plain solid tail-stock. Lathe may be provided with compound rest, with spinning rolls and with adjustable tail-stock, suited for bulging chuck and other work, at extra price, when ordered. Total weight about 1,300 lbs.

General description, page 343. Dimensions, page 343. Code Word...........

The "Toledo" No. 325 Spinning Lathe

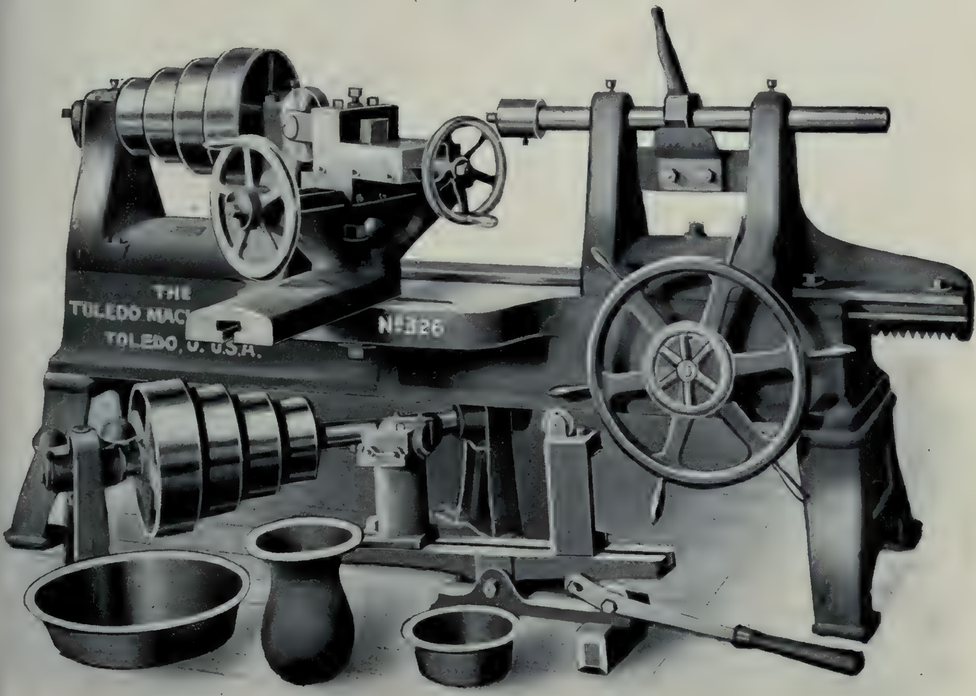

No. 325
TOLEDO MACH.
AND TOOL CO.
TOLEDO, U.S.A.

NUMBER 325 Spinning Lathe complete with compound rest, spinning roll, tilting attachment, with beading roll, trimming cutters and adjustable movable tail-stock, is represented in the above illustration. Lathe is adapted to a wide range of work similar to our No. 326, illustrated on following page. Total weight about 1,900 lbs.

General description, page 343. Dimensions, page 343. Code Word...........

The "Toledo" No. 326 Spinning Lathe, With Swivel Spinning Roll, Trimming and Curling Attachments

(Old No. 6.)



THIS illustration of Spinning Lathe No. 326 shows compound rest, spinning and burnishing attachments, tilting rest with trimming cutter and wiring attachment, with adjustable tail-stock for irregular shaped work, such as plates, basins, taper pans, etc. It is one of five sizes of Spinning Lathes of the latest pattern and is specially suited for stamped and enameled ware. Spinning, trimming and wiring can be done at one setting, and the movements are so arranged that the operator is able to accomplish the greatest amount of work with the least labor and in the quickest time possible.

Tail-stock adjustment is provided for in a similar manner to the regular engine lathe, and the machine throughout is built in the best manner. Total weight about 3,400 lbs.

General description, page 343. Dimensions, page 343
Code Word, complete as shown............

The "Toledo" Double Seaming Machines

	Plain					Special	
Number of Machine	301	302	303	304	304½	302-S	303-S
Old Number	....	2	3	4	....	2-S	3-S
Page of Catalogue	....	351	353	355	....	352	354
Price with cone pulley and counter shaft without attachments	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Weight, about ... pounds	375	725	1700	4200	4400	1000	1850
Price with T. and L. pulley only, without attachments	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Weight, about ... pounds	300	600	1500	3950	4150	850	1600
Page of Catalogue	....	....	....	....	....	....	....
Price for attachment for seaming unflanged bodies	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Price for deflecting attachment	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Price for offset spindle and anti-friction plate	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Price for collapsible chuck	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Price for blank centering devise	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Price for special seaming roll holder	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....	....	....
Will receive work not exceeding in diameter ... inches	8	15	20	26	32	15	20
Will receive work not exceeding in height ... inches	10	16	24	33	41	9	15
Diameter of spindle end for chuck thr. per ... inches	1-8T	1¼-7T	....	....	....	....	....
Distance from spindle center to frame ... inches	4½	8	11	14	17½	8	11
Size of pulley on back shaft ... inches	8 x 2½	....	....	....	....	10 x 3	....
Size of pulley on counter shaft ... inches	....	10 x 3	12 x 3½	24 x 4	24 x 4	....	12 x 3½
Speed of pulley on back and counter shaft ... R. P. M.	400:800	300:600	200:500	150:300	125:250	300:600	200:500
Diameter of cone pulley steps ... inches	....	6-8-10	8-10-12	12-16-20	12-16-20	....	8-10-12
Face of cone pulley steps ... inches	....	2½	3¼	4½	4½	....	3¼
Diameter of base round ... inches	....	22	27	38	38	22	27
Floor space over all, F. to B., R. to L. ... inches	....	44 x 38	52 x 40	70 x 56	78 x 60	44 x 38	52 x 40

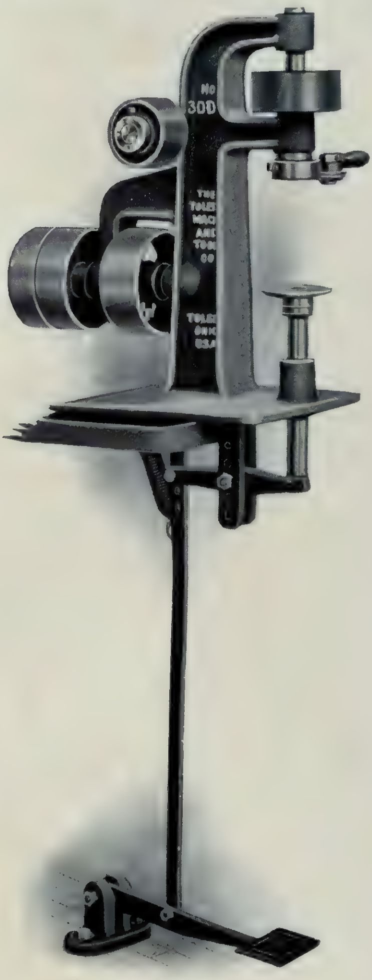
Speed of the above machines varies according to the work.

The "TOLEDO" Double Seaming Machines

	Oval or Square				Round
Number of Machine	305	306	307	307-A	308
Old Number	....	....	....	....	....
Page of Catalogue	356	....	357	....	358
Price with cone pulley and counter shaft without attachments	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Weight, about ... pounds	1500	....	3200	3550	4200
Price with T. and L. pulley only, without attachments	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Weight, about ... pounds	....	....	....	....	4000
Page of Catalogue	....	....	....	....	....
Price for attachment for seaming unflanged bodies	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Price for deflecting attachment	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Price for offset spindle and anti-friction plate	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Price for collapsible chuck	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Price for blank centering device	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Price for special seaming roll holder	$.....	$.....	$.....	$.....	$.....
Code word	....	....	....	....	....
Will receive work not exceeding in diameter ... inches	12	....	26	26	36
Will receive work not exceeding in height ... inches	14	....	15½	24	34
Diameter of spindle end for chuck threads per ... inches	1½-6T	....	2-4½T	2-4½T	4-3T
Distance from spindle center to frame ... inches	10	....	17	17	....
Size of pulley on back shaft ... inches	....	....	....	....	24 x 6
Size of pulley on counter shaft ... inches	16 x 4	....	20 x 4	20 x 4	24 x 6
Speed of pulley on back and counter shaft ... R. P. M.	300:450	....	150:300	150:300	270
Diameter of cone pulley steps ... inches	9-11-13	....	10-12-14	10-12-14	....
Face of cone pulley steps ... inches	3¼	....	4	4	....
Floor space of base, F. to B., R. to L. ... inches	34 x 24	....	40 x 28	40 x 28	38 x 56
Floor space over all, F. to B., R to L. ... inches	54 x 34	....	74 x 52	74 x 52	40 x 78

Diameter on the Nos. 305, 306, 307 and 307-A Square Seamers is across corners.
Speed of the above machines varies according to the work.

The "Toledo" No. 300 Bench Double Seamer

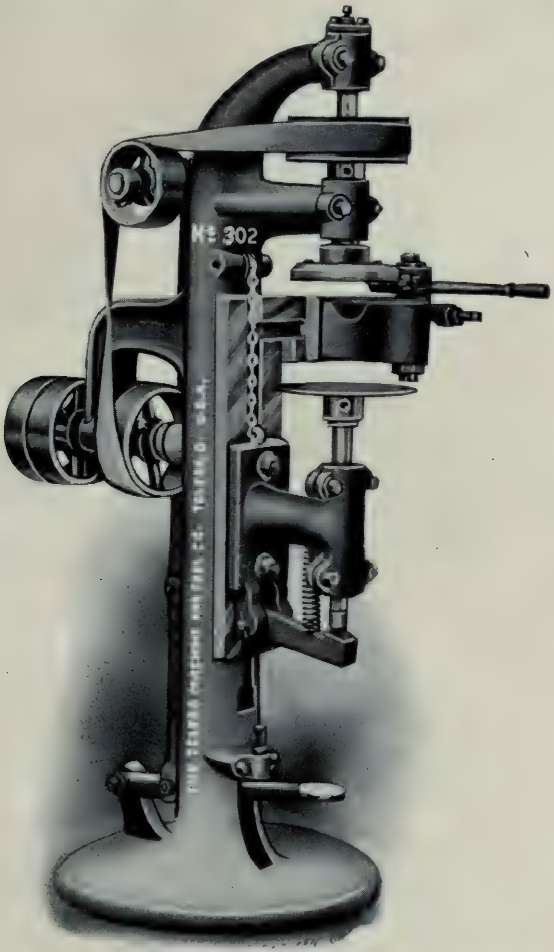


NUMBER 300 Bench Double Seamer is designed for crimping and seaming bottoms and tops on small cans, baking powder boxes, etc., and is also used for crimping the tops on to filled cans.

Built either for bench use or with iron standards, as ordered.

Price with one set of discs	$.....
Weight, about ....pounds	200
Will crimp cans in diameter ....inches	6
Will crimp cans in height ....inches	7
Size of belt pulleys ....inches	6 x 2
Speed of belt pulleys ....R. P. M.	200
Size of base, F. to B., R. to L. ....inches	14 x 12

The "Toledo" No. 302 Double Seamer--(Old No. 2.)



THIS machine is designed for double seaming bottoms on medium or small size pieced or stamped tinware, also all sizes of fruit cans; to seaming bottoms and tops on oil cans, powder kegs, gasoline or oil tanks and other lines of work within the capacity of the machine.

It may also be used, by means of special attachments, for forming or curling the false wire edge on lard, paint and grease pails, etc.

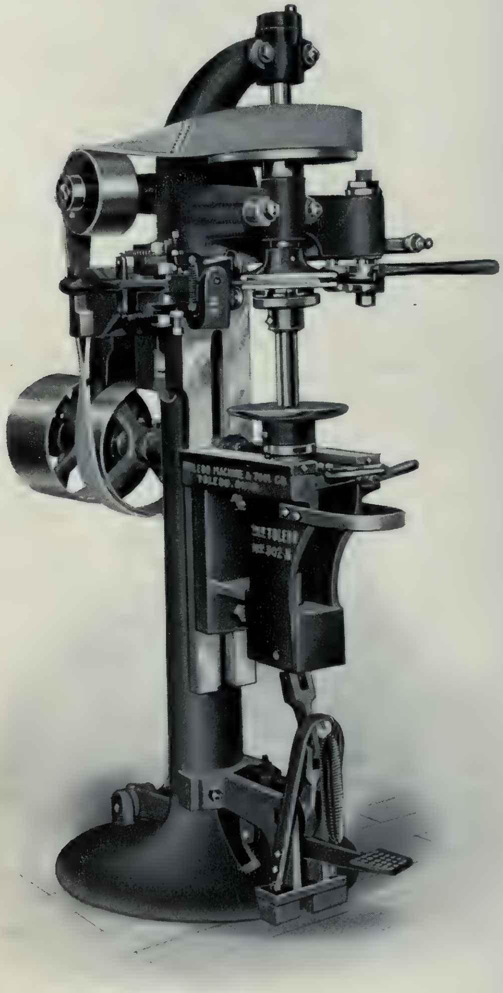
The end of the lower spindle is case hardened. The end block or bar for this spindle is hardened tool steel.

The lower spindle bracket is adjusted by a rack and pinion, not shown, having a counter balance or weight on the inside of seamer, which enables the operator to adjust the height of the bracket with very little labor.

Built in standard pattern, as shown, or in high pattern, and with seaming lever on right or left-hand side, as ordered. Weight about 725 lbs.

Dimensions, page 348. Code Word............

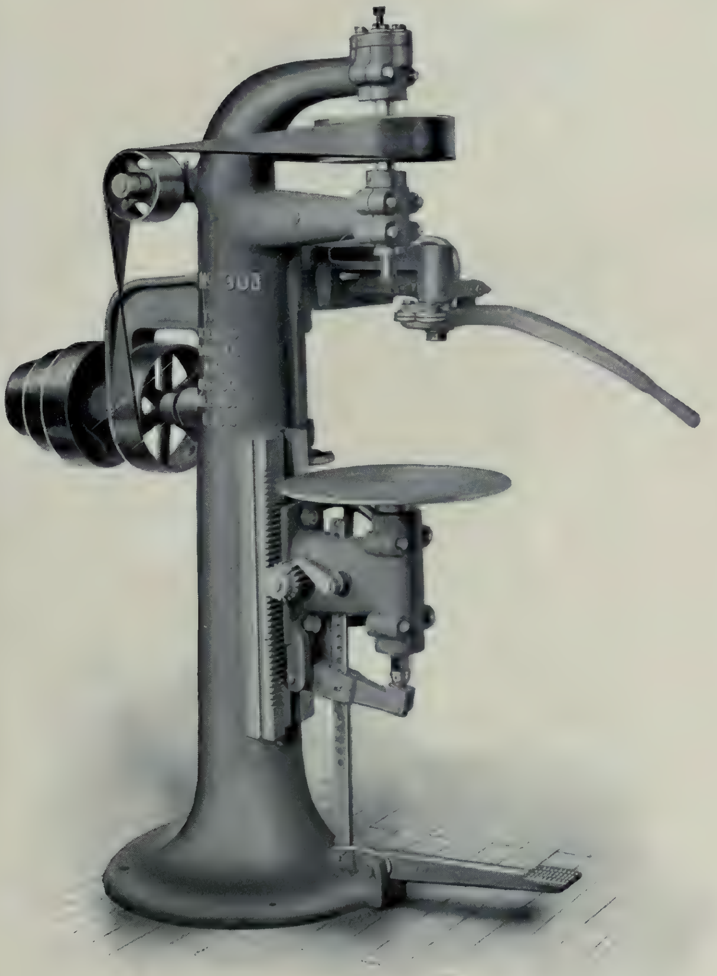
The "Toledo" No. 302-S Special Double Seamer



THIS illustration shows our No. 302-S Special Double Seamer, fitted with semi-automatic sliding lower plate. This plate is fitted with a stud or mandrel, with deflecting chuck for use in seaming bottoms on the inside of the large end of flaring pots or pails. The plain, flat, smooth bottom, without panel, may be used with this style of attachment. Total weight about 1,000 lbs.

Dimensions, page 348. Code Word...........

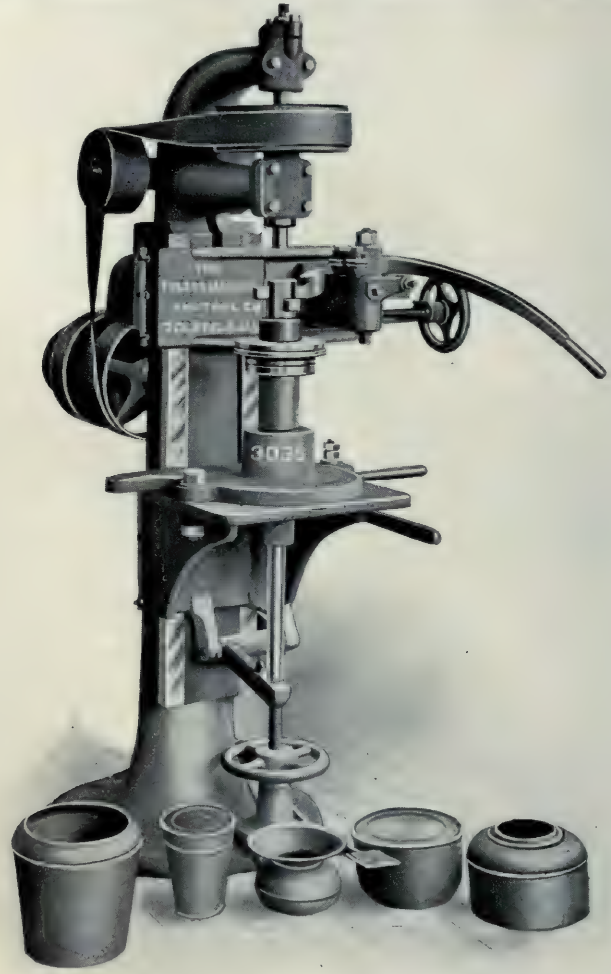
The "TOLEDO" No. 303 Double Seamer



THIS size seamer has capacity for the medium and smaller sizes of wash tubs, small garbage cans, oil cans, metal packages and a general line of the larger sizes of metal stampings and pieced tinware. Total weight about 1,700 lbs.

Dimensions, page 348. Code Word, as shown...........

The "Toledo" No. 303-S Special Double Seamer

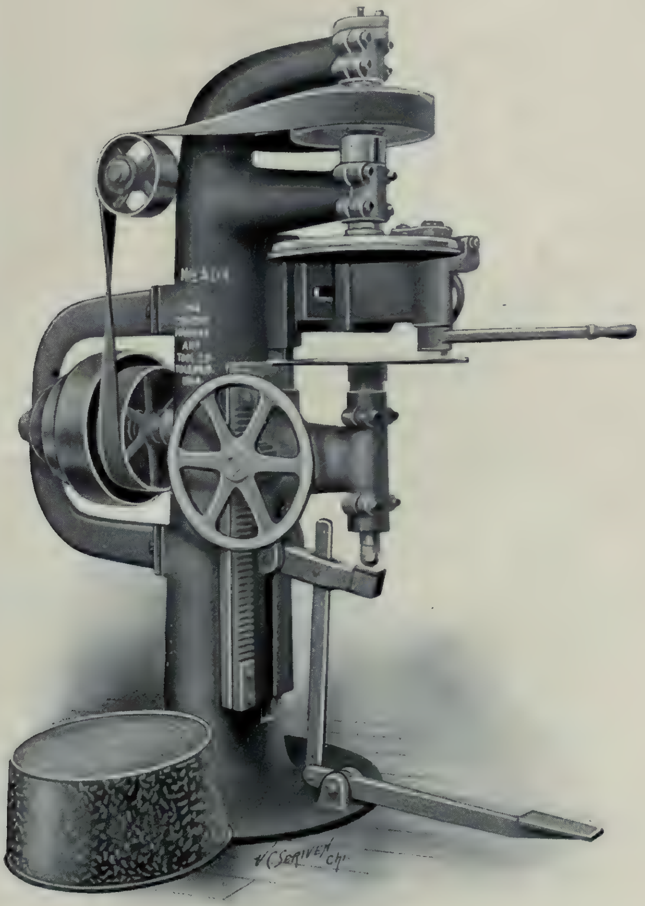


NUMBER 303-S Special Double Seamer, with attachments for internal double seaming flat bottoms on pressed or stamped steel and enameled ware, is here illustrated. It is also used for seaming tops or breasts of special stamped shapes or cylindrical parts, for oil cans, or any similar line of work. Holder for internal seaming roll is fitted in lower spindle, spindle being made of hammered steel with exceptionally long bearings and carried on hard steel plates fitted with ball bearings. This attachment is made adjustable to suit work of various depths.

Other special attachments and deflecting or collapsible holders are also fitted to these seaming machines for seaming flat bottoms on tea kettles, coffee pots and similar articles. Total weight about 1,850 lbs.

Dimensions, page 348. Code Word, as shown...........

The "TOLEDO" No. 304 Double Seamer
(Old No. 4.)

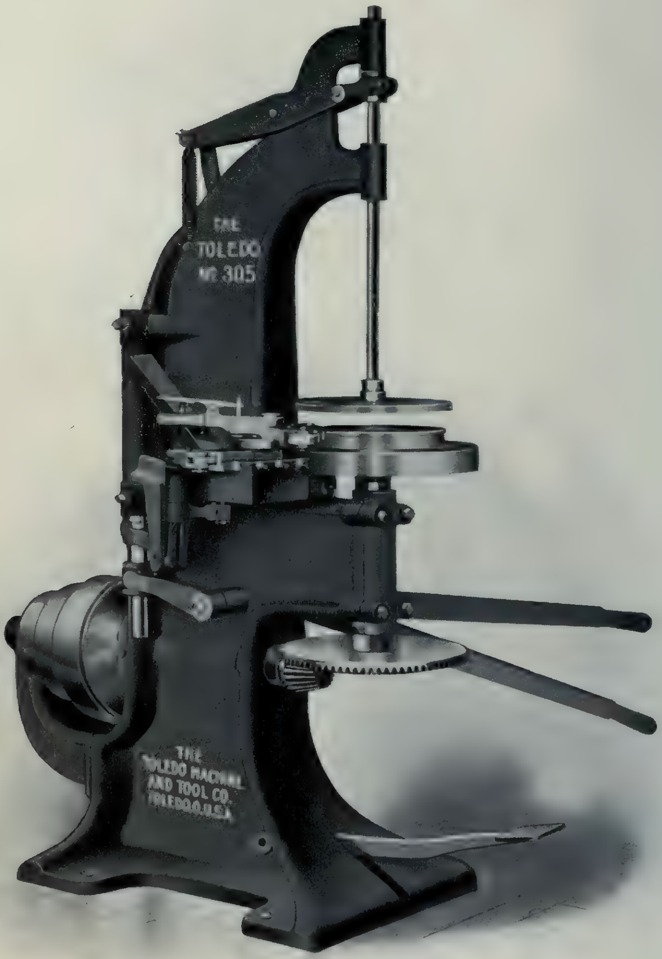


DOUBLE Seamer No. 304 is specially suited for very large and heavy work, such as seaming bottoms on hot blast steel stoves, all sizes of black iron and galvanized wash tubs, garbage and ash cans, oil cans, gasoline tanks, and any other work requiring a large, powerful, double seaming machine for seaming either tops or bottoms.

Furnished with cone pulley, or tight and loose pulley and countershaft, as ordered. Total weight about 4,200 lbs.

Dimensions, page 348. Code Word...........

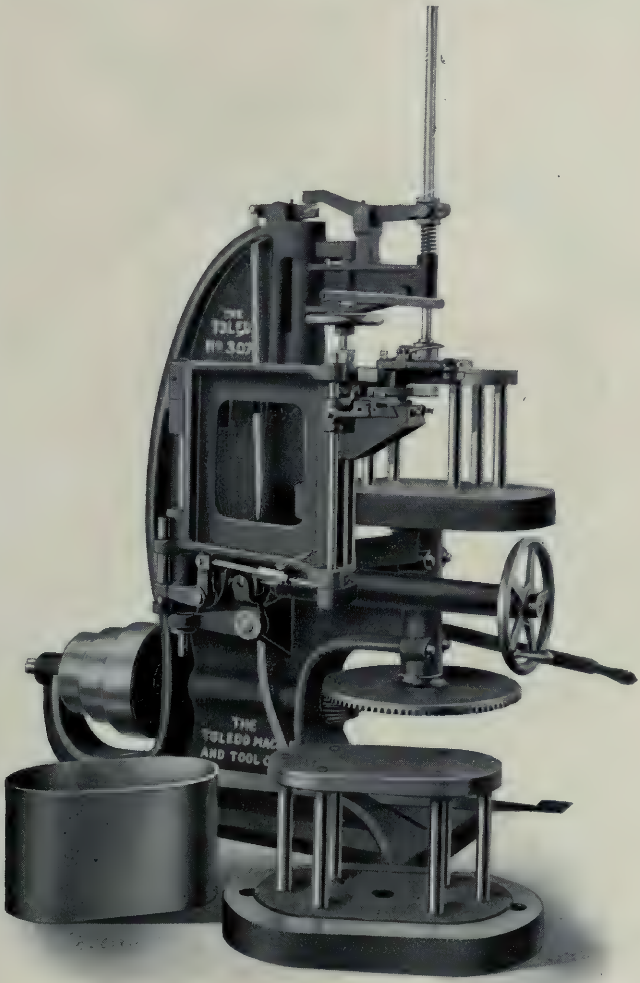
The "Toledo" No. 305 Oval Double Seamer



THIS illustration shows our Cam Actuated Oval Double Seamer, fitted with friction clutch and a cam actuated seaming roll movement. A cam is required for each size and shape of oval, square or rectangular work. This type of Seamer is particularly suited for seaming dinner pails, bread and cracker boxes, roasters and pans, and for curling or false wiring roaster, pan covers and similar work. Total weight about 1,500 lbs.

Dimensions, page 349. Code Word...........

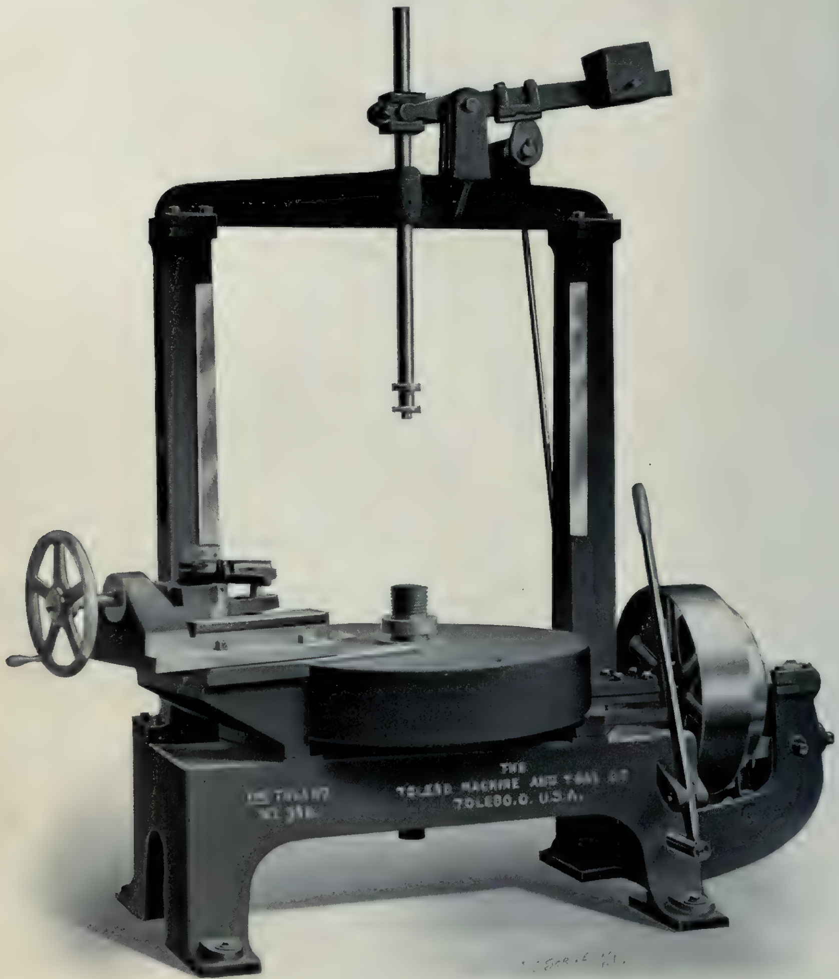
The "Toledo" No. 307 Oval Double Seamer



THIS machine is designed for seaming tops and bottoms on petroleum cans, wash boilers, oval camp and hot blast stoves, also bread boxes, metal packages, bottle cases and similar work and can be used on square, oval or irregular shaped work of metal as heavy as No. 22 gauge. Machine is made to take in work as high as 26 inches, on the special high pattern machines, and 14 inches on the regular standard machines. Machine is furnished complete with countershaft and cone pulleys and with chucks for one size of work; additional chucks furnished at extra cost. Total weight about 3,200 lbs.

Dimensions, page 349. Code Word...........

The "Toledo" No. 308 Double Seaming Machine



OUR No. 308 Double Seamer is used for double seaming tops and bottoms on steel barrels, by-product drums and similar large round receptacles of the heavier gauges of metal. A positive adjustment for the seaming rolls is provided by the screw feeding device with which the roll holder is equipped. In place of using a foot treadle for operating the upper spindle, the latter is brought down on the work by a link motion controlled by the hand lever shown at the right of machine; throwing this lever in forces the upper spindle and chuck down tightly on the work, the spindle and chuck being held in contact with the work by a cam having angle so arranged as to promptly release the spindle when the operation is completed. Total weight about 4,200 lbs.

Dimensions, page 349. Code Word...........

The "Toledo" Squaring and Gap Trimming Shears

TOLEDO Squaring and Gap Trimming Shears are noted for the ease, rapidity and accuracy with which they perform their work. They are up to the highest standard for machines of this class, and the workmanship and material are of the highest quality throughout.

Our Squaring and Gap Trimming Shears are built in all sizes with widths and capacities as required. They are not only proportionately heavier throughout, but also more rigid in design and more durable than those of equal listed capacity of many other makes. "Toledo" Shears have heavily reinforced beds and gates or cross heads, and the construction throughout eliminates the tendency to "spring" encountered on the cheaper makes of shears even when operating within their rated capacity. "Toledo" Shears are used by many of the leading electrical and metal goods manufacturers, as well as in the largest tinplate and steel mills, where these machines are subjected to constant hard usage.

The clutch mechanism employed is specially suited for this type of machine, is quick acting and most effective, and the shafts are of forged high carbon steel. All gears are machine-cut from solid metal which is particularly suited for the purpose. The bearings have wide and long wearing surfaces, and adjustment is provided for taking up the wear.

Drop-leaf tables are provided on our Power Squaring Shears and for both ends of our Gap Shears, when desired, at slight additional cost.

Full sets of front and rear extensions with adjustable gauges are provided on all Power Shears.

Blades are unusually heavy and are made of the best material obtainable for this purpose, carefully hardened and ground.

Automatic hold-down or clamping attachment is fitted to all our Shears. This attachment holds the stock firmly in place while being cut, releasing grip as soon as cut is completed. It is adjustable for different thicknesses of material.

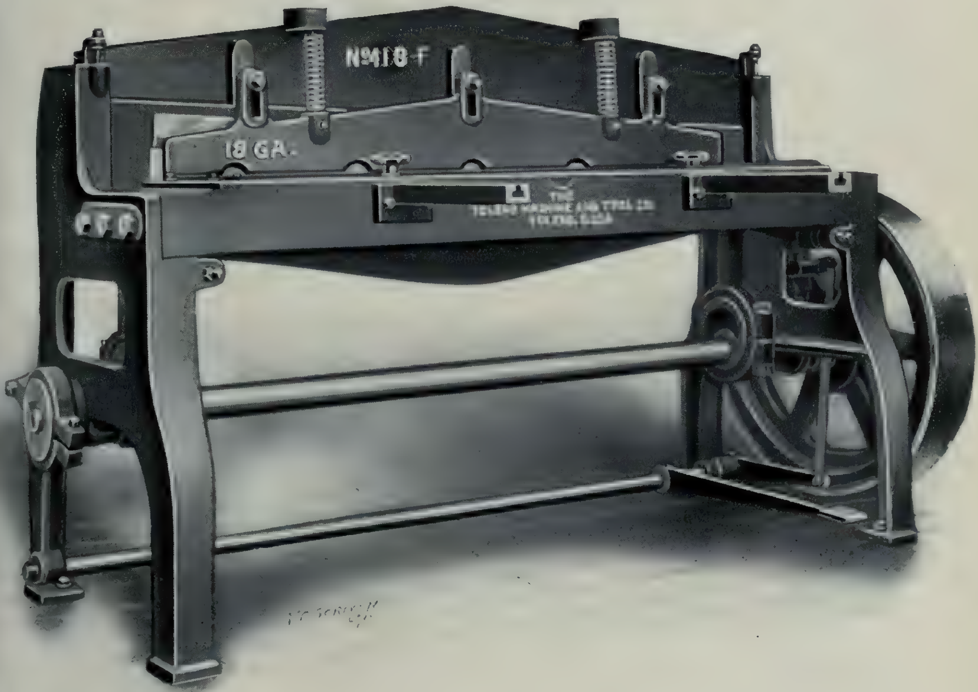
On our Gap Shears, the driving mechanism is overhead and acts directly on the cutter bar. The gap or throat in the housing permits sheets of any length to be cut, up to a distance from the edge equal to the depth of the gap. By the use of adjustable gauges, the continued cut is straight and in line with the first.

The "Toledo" Squaring Shears

	No. of Shear	Price	Code Word	Weight Pounds	Length of Blade Inches	Propor- of Gear	Belt Pulleys		Floor Space of Base F. to B. R. to L. Inches	Floor Space Over All F. to B. R. to L. Inches
							Diam. and Face Inches	Rev. per Min.		
18 Gauge	418-A	$.....	......	950	31	.....	24x3½	90	27x 44	42x 56
	418-B	$.....	......	1150	37	.....	24x3½	90	27x 50	42x 62
	418-C	$.....	......	1300	43	.....	24x3½	90	27x 57	42x 68
	418-D	$.....	......	1400	49	.....	24x3½	90	27x 63	46x 75
	418-E	$.....	......	2000	61	.....	26x3½	90	30x 75	46x 88
	418-F	$.....	......	3000	73	.....	28x4	80	36x 88	50x104
	418-G	$.....	......	4400	97	.....	28x4	80	36x112	50x128
16 Gauge	416-A	$.....	......	1000	25	3:1	18x3½	125	28x 38	56x 60
	416-B	$.....	......	1200	31	3:1	18x3½	125	28x 44	56x 66
	416-C	$.....	......	1450	37	3:1	18x3½	125	28x 50	56x 72
	416-D	$.....	......	2000	43	3:1	24x3½	125	31x 58	56x 80
	416-E	$.....	......	2300	49	3:1	24x3½	125	31x 64	56x 88
	416-F	$.....	......	2900	61	3:1	24x3½	125	31x 76	66x100
	416-G	$.....	......	3500	73	4½:1	28x4	175	36x 88	66x112
	416-H	$.....	......	4050	85	4½:1	28x4	175	36x100	66x124
	416-I	$.....	......	4600	97	4½:1	28x4	175	36x112	66x136
	416-J	$.....	......	8000	121	6:1	28x4	250	42x138	82x166
	416-K	$.....	......	12000	145	6:1	30x5	250	42x166	82x204
11 Gauge	411-A	$.....	......	2600	21	5:1	24x4	200	34x 44	72x 68
	411-B	$.....	......	2800	27	5:1	24x4	200	34x 50	72x 74
	411-C	$.....	......	3100	37	5:1	26x4	200	34x 60	72x 84
	411-D	$.....	......	3500	48	5:1	26x4	200	34x 68	72x 96
	411-E	$.....	......	4100	61	5:1	28x4	200	34x 80	72x108
	411-F	$.....	......	5200	73	6:1	30x5	200	46x 92	82x124
	411-G	$.....	......	6600	97	6:1	30x5	200	46x118	82x148
	411-H	$.....	......	7500	121	6:1	30x5	200	44x136	72x166
	411-I	$.....	......	10000	145	6:1	36x5	200	44x162	72x192
3/16 inch	400 3/16-A	$.....	......	6000	37	5½:1	24x4	250	50x 58	70x 88
	400 3/16-B	$.....	......	6700	49	5½:1	24x4	250	50x 70	70x100
	400 3/16-C	$.....	......	7800	61	7:1	24x5	250	50x 82	94x118
	400 3/16-D	$.....	......	8800	73	7:1	32x5½	250	50x 95	94x132
	400 3/16-E	$.....	......	10500	97	7:1	34x6	225	52x109	98x144
	400 3/6-F	$.....	......	12300	121	7:1	34x6	225	52x135	98x170
	400 3/16-G	$.....	......	15000	145	7:1	34x6	225	52x160	98x196
¼ inch	400¼-A	$.....	......	5200	37	7½:1	30x6	250	56x 56	100x106
	400¼-B	$.....	......	6800	49	7½:1	30x6	250	56x 68	100x120
	400¼-C	$.....	......	9000	61	7½:1	30x6	250	56x 82	110x132
	400¼-D	$.....	......	12200	73	7½:1	30x6	250	56x 98	110x144
	400¼-E	$.....	......	16000	97	7½:1	30x6	250	56x116	118x168
	400¼-F	$.....	......	20000	121	21:1	30x5	350	56x150	124x204
	400¼-G	$.....	......	26500	145	21:1	30x5	350	56x174	124x228
	400¼-H	$.....	......	36000	194	21:1	30x6	350	56x224	130x278
⅜ inch	400⅜-A	$.....	......	6500	37	7½:1	30x6	225	42x 62	98x104
	400⅜-B	$.....	......	8700	49	7½:1	30x6	225	42x 74	98x116
	400⅜-C	$.....	......	11900	61	7½:1	30x6	225	42x 88	104x128
	400⅜-D	$.....	......	16000	73	7½:1	30x6	225	42x102	104x140
	400⅜-E	$.....	......	21000	97	7½:1	30x6	225	42x118	104x164
	400⅜-F	$.....	......	28000	121	24:1	32x6	350	48x148	110x200
	400⅜-G	$.....	......	37000	145	24:1	32x6	350	48x174	110x224
½ inch	400½-A	$.....	......	17500	37	7½:1	32x8	200	44x 58	104x115
	400½-B	$.....	......	20000	49	7½:1	32x8	200	44x 70	104x127
	400⅙-C	$.....	......	22500	61	7½:1	32x8	200	44x 82	104x139
	400½-D	$.....	......	25500	73	7½:1	32x8	200	44x 94	144x151
	400½-E	$.....	......	30000	100	7½:1	32x8	200	44x122	144x178
	400½-F	$.....	......	37000	121	24:1	32x6	350	44x150	144x204

The "TOLEDO" No. 418-F, Squaring Shear

(Old No. 400.)



Capacity No. 18 Gauge

THIS illustration gives a good idea of the general design and appearance of our Squaring Shears for the lighter gauges of metal. Shear illustrated is designed for cutting and squaring sheets of metal 18-gauge and lighter.

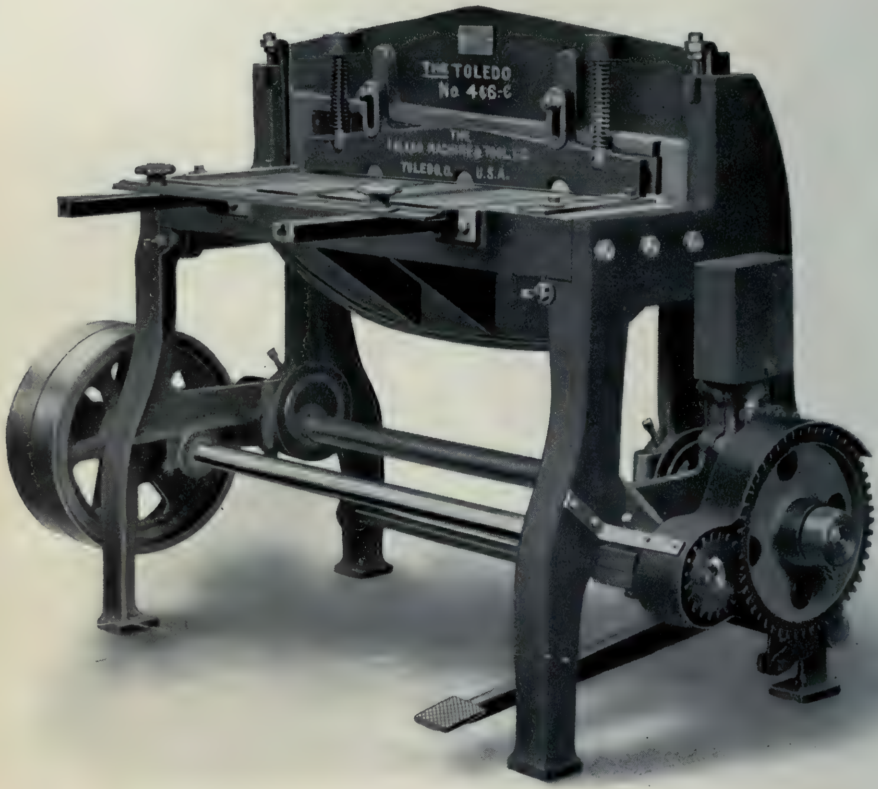
Provided with our automatic clutch and with spring hold-down attachment. Bronze gibs are provided for taking up the wear, and a lateral adjustment for setting the blades. Blades are larger and heavier than on ordinary shears, and the machine throughout is of a high quality and the work produced is consequently accurate.

This style and capacity Shear built with blades from 31 to 97 inches in length, as ordered. Total weight about 3,000 lbs.

General description, page 359. Dimensions, page 360. Code Word............

The "Toledo" No. 416-C Squaring Shear

(Old No. 403.)

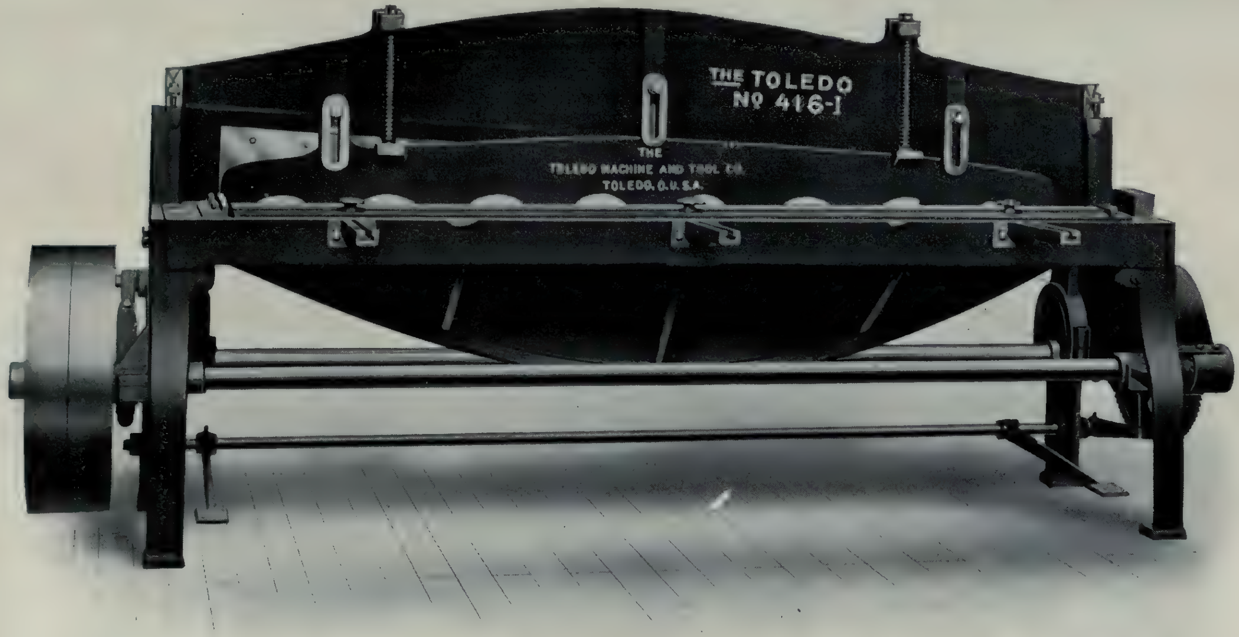


Capacity No. 16 Gauge

THIS illustration shows our 16-gauge Shear with 37-inch blades. These Shears are now made geared, instead of plain as formerly, thereby increasing the efficiency and durability of the machines, and at the same time producing fully as much work. Built in a number of sizes for handling work to and including 145 inches wide. Total weight about 1,450 lbs.

General description, page 359. Dimensions, page 360. Code Word...........

The "Toledo" No. 416-I, 97-Inch Squaring Shear--(Old No. 408.)

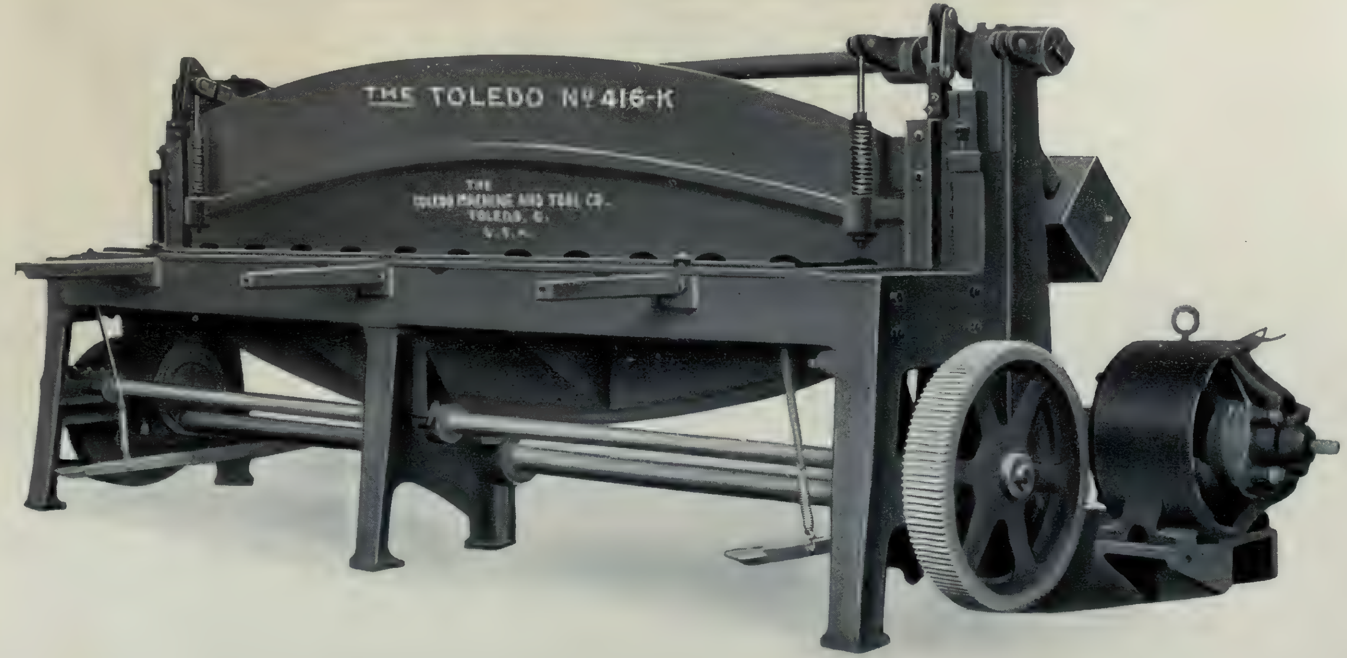


Capacity No. 16 Gauge

THIS Shear is fitted with automatic clutch, machine-cut gearing, and with automatic hold-down or clamping attachment, and has capacity for squaring or shearing 16-gauge metal, the full length of the blades—97 inches. Total weight about 4,600 lbs.

General description, page 359. Dimensions, page 360. Code Word..........

The "Toledo" No. 416-K, 145-Inch Squaring Shear--(Old No. 410.)



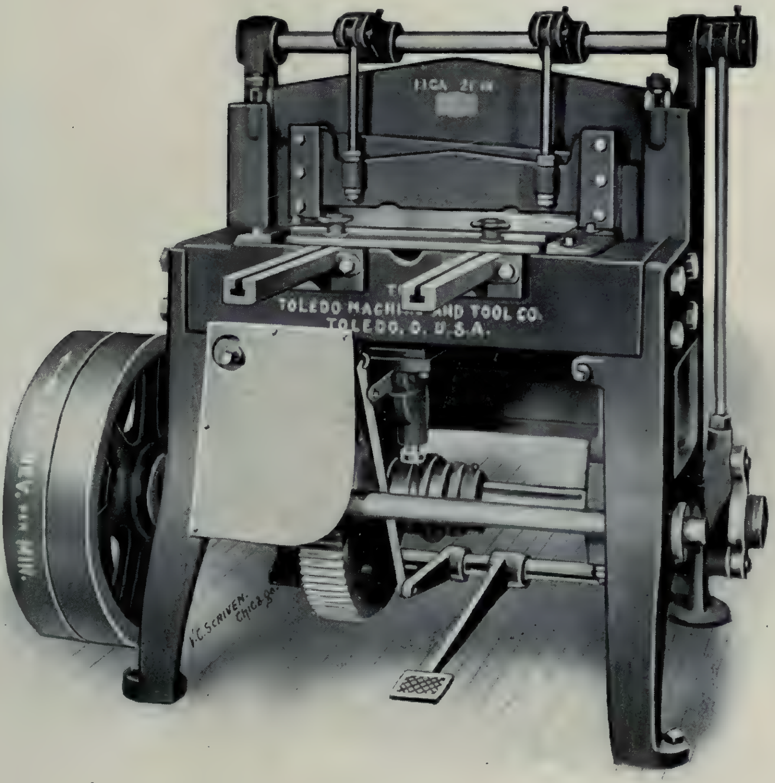
Capacity No. 16 Gauge

THIS Shear is used largely by manufacturers of electrical equipment, auto parts and cornice work and squaring on large sheets of light metal. Constructed with a center bearing and leg, and has automatic cam actuated hold-down. The gearing is all encased, which insures safety to the operator and prevents the scrap from getting into the gearing. Front and rear extensions with gauges and screw adjustment are provided. Any of our shears can be arranged for direct-connected motor-drive as illustrated above. Built with blades from 25 to 145 inches in length as ordered. Total weight about 12,000 lbs.

General description, page 359. Dimensions, page 360. Code Word...........

The "Toledo" No. 411-A, 21-Inch Squaring Shear

(Old No. 411.)


TOLEDO MACHINE AND TOOL CO.
TOLEDO, O. U.S.A.
J.C. SCRIVEN. Chicago.

Capacity No. 11 Gauge

A HEAVY Pattern Geared Shear, with automatic cam actuated hold-down attachment is here shown. This Shear is specially suited for use in the manufacture of shovels, hinges, washers, and various articles of a similar nature where a powerful and rigid narrow width squaring shear is desired.

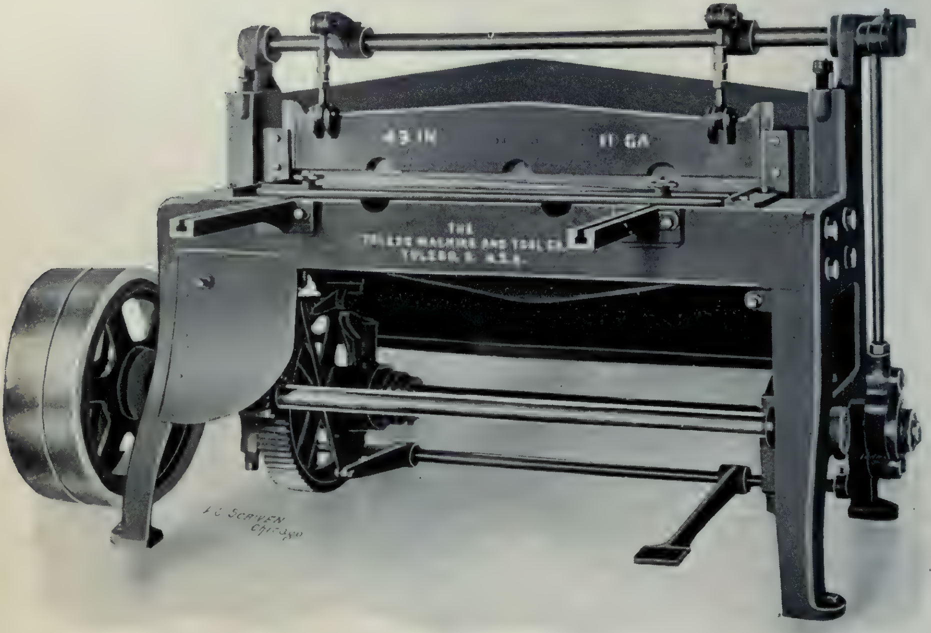
All our Shears are substantially and carefully built. The bearings for the gate or cross-head are fitted with bronze adjusting gibs for taking up any possible wear. All our Shears for 11-gauge and heavier metal are provided with "Toledo" Three-Engagement Block Clutch.

This style and capacity Shear built with blades from 21 to 145 inches in length, as ordered. Total weight above Shear about 2,600 lbs.

General description, page 359. Dimensions, page 360. Code Word............

The "Toledo" No. 411-D, 49-Inch Squaring Shear

(Old No. 413.)



Capacity No. 11 Gauge

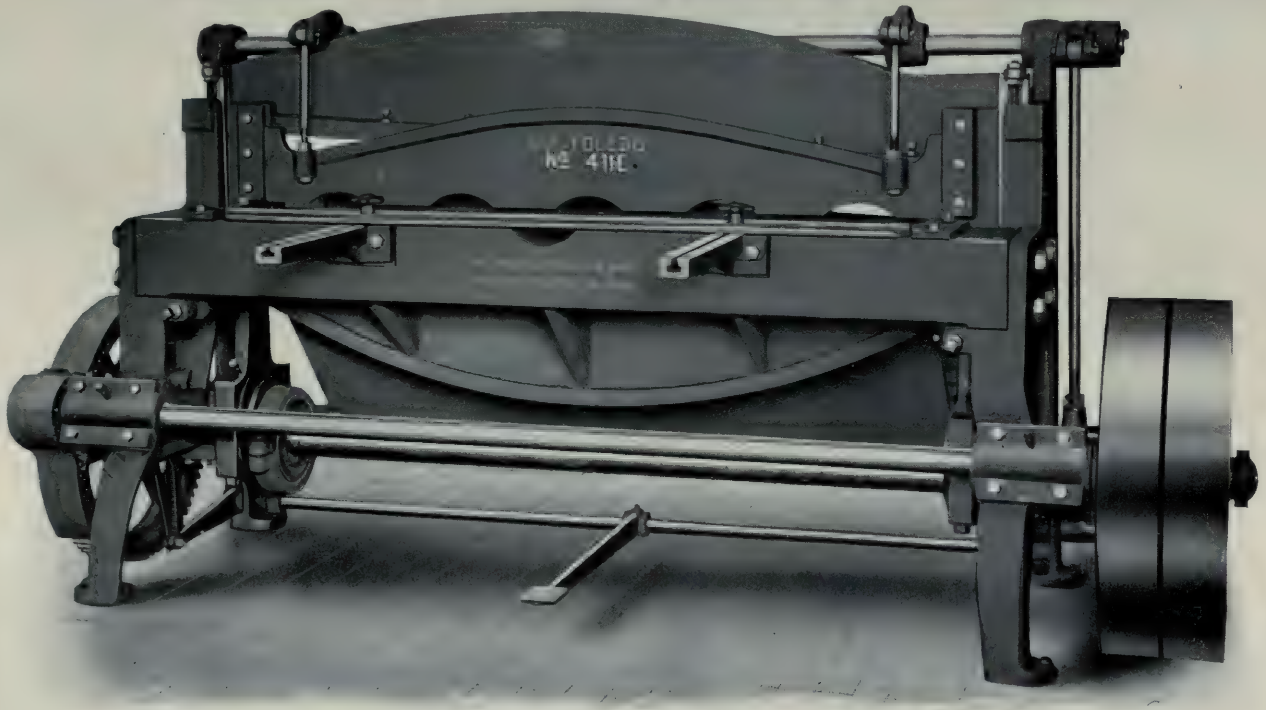
A 49-Inch Heavy Pattern Geared Squaring Shear, with our automatic three-engagement clutch, and with cam actuated hold-down attachment, is represented above. Capacity, 11-gauge metal.

Shear blades on these machines, for the heavier gauges of metal, are correspondingly heavier than for the lighter gauges and give the longest possible service.

Shears of this style and capacity built with blades from 21 to 145 inches in length as ordered. Total weight about 3,500 lbs.

General description, page 359. Dimensions, page 360. Code Word...........

The "Toledo" No. 411-E, 61-Inch Squaring Shear—(Old No. 414.)

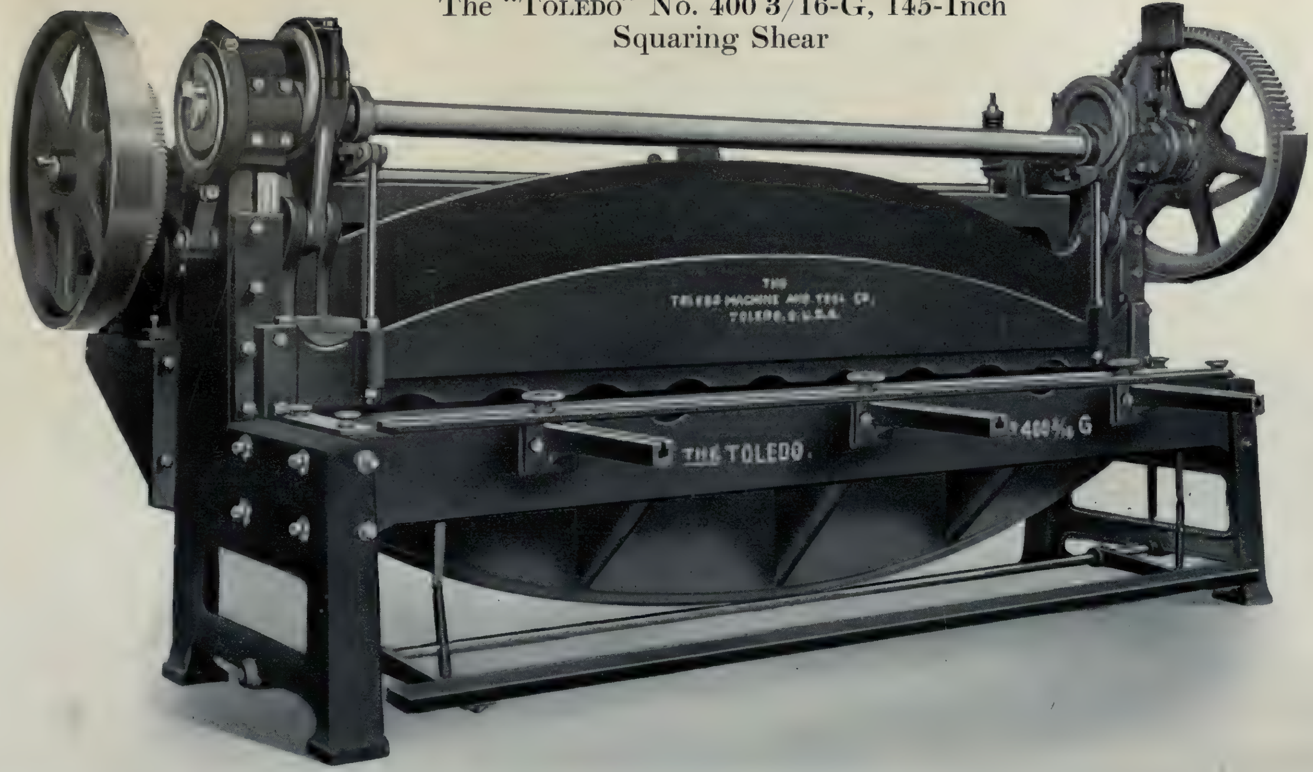


Capacity No. 11 Gauge.

A VERY heavy pattern Shear is shown in the above illustration. Fitted with cam actuated hold-down attachment, automatic three-engagement clutch, machine cut gearing, front and rear extensions with a full set of adjustable front, back and side gauges. Total weight about 4,100 lbs.

General description, page 359. Dimensions, page 360. Code Word...........

The "Toledo" No. 400 3/16-G, 145-Inch Squaring Shear

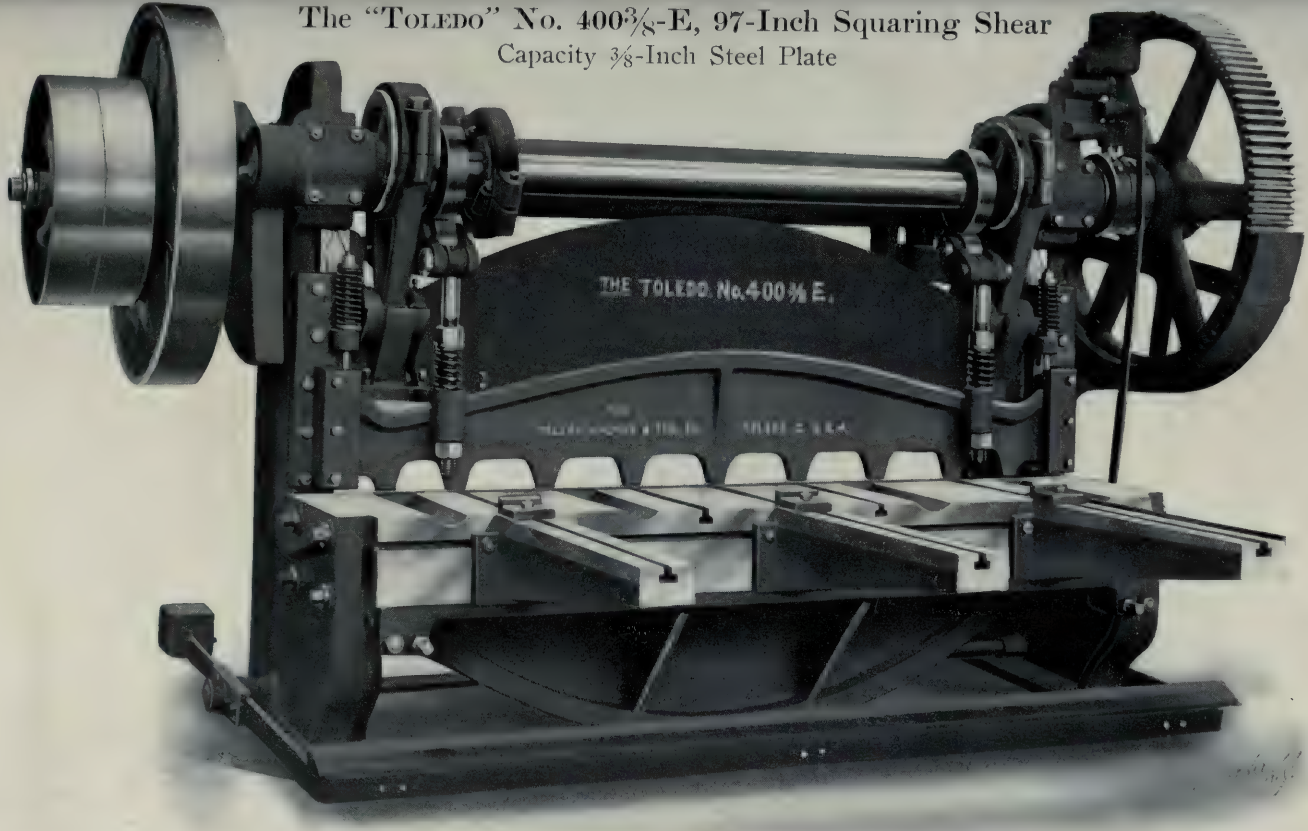


THIS Shear has capacity for cutting $\frac{3}{16}$-inch steel plate. Illustration shows a compact, rigid form of direct-connected motor-drive, so arranged as not to increase the floor space required, nor to impede the feeding of wide sheets through the Shear. Total weight about 15,000 lbs.

General description, page 359. Dimensions, page 360. Code Word..........

The "Toledo" No. 400⅜-E, 97-Inch Squaring Shear

Capacity ⅜-Inch Steel Plate



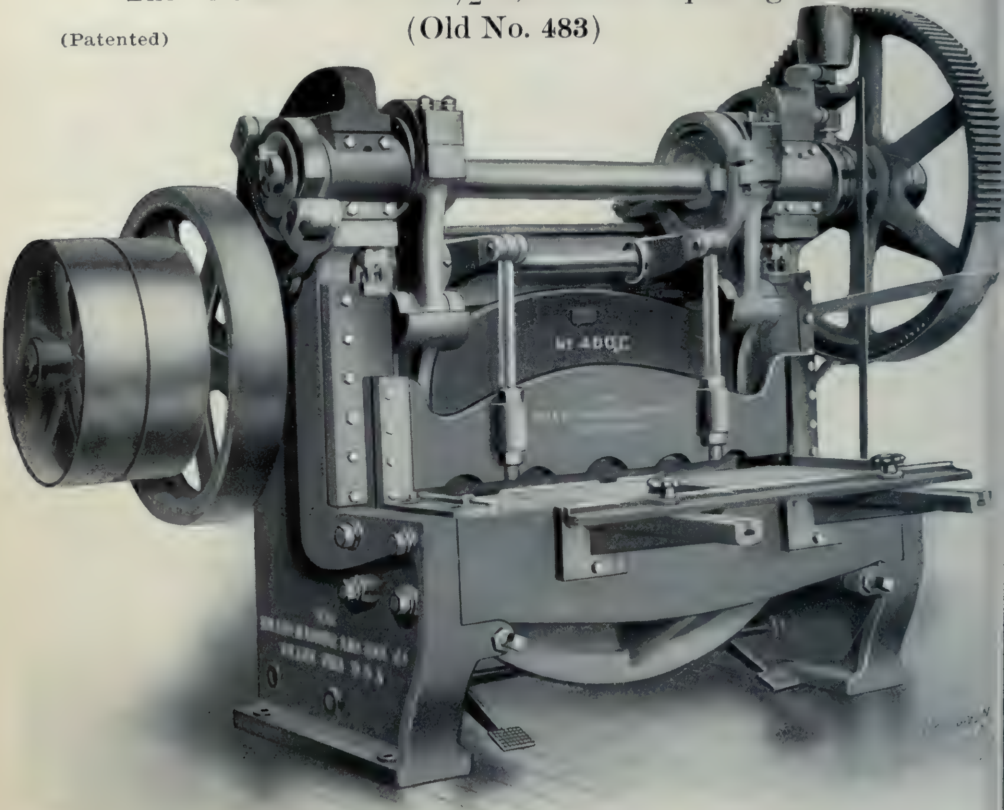
THIS Shear has capacity for cutting ⅜-inch steel plate. Fitted with cam actuated hold-down attachment, heavily counter-weighted cross-head and with "Toledo" Three-Engagement Block Clutch. Used by many leading manufacturers of automobiles and other heavy work. Total weight about 21,000 lbs.

General description, page 359. Dimensions, page 360. Code Word...........

The "Toledo" No. 400½-C, 61-Inch Squaring Shear

(Patented)

(Old No. 483)



Capacity ½-Inch Plate.

THIS illustration represents one of our Plate Squaring Shears, with capacity for cutting sheets of ½-inch plate. Fitted with the "Toledo" Three-Engagement Block Clutch, automatic cam actuated hold-down attachment, front and rear extensions, adjustable gauges and machine cut gearing.

The clutch gear has bronze bushed bearing. Automatic clutch has hardened steel surfaces at engaging points. Clutch is disengaged at highest point of stroke; or by locking the treadle down, the machine runs continuously.

The bed is strongly reinforced and the machine throughout is of unusual strength, rigidity and durability. Weight about 19,000 lbs.

Adapted and specially suited for plate rolling mills, structural iron, implement and similar lines of work.

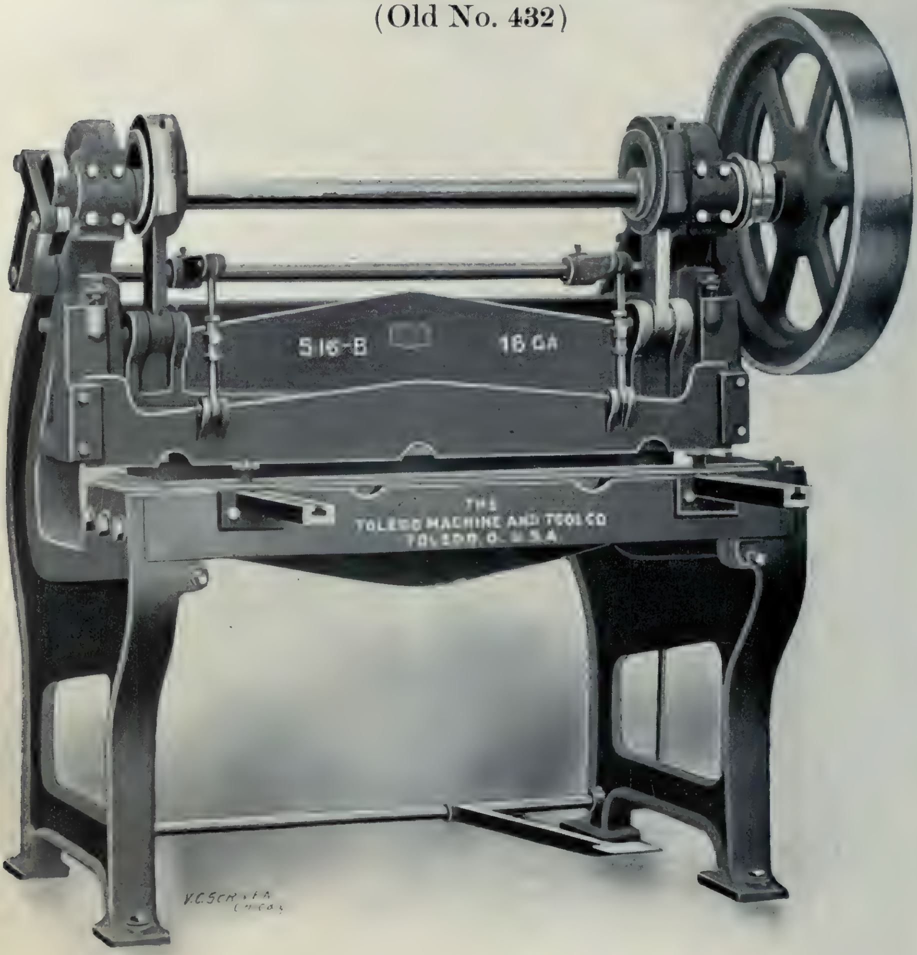
This style and capacity of Shear built with blades from 37 to 121 inches in length, as ordered. Total weight about, 22,500 lbs.

General description, page 359. Dimensions, page 360. Code Word............

The "Toledo" Gap Trimming and Squaring Shears.

	No. of Shear	Price	Code Word	Weight Pounds	Length of Blades Inches	Depth of Gap Inches	Proportion of Gear	Belt Pulleys		Floor Space of Base F to B R to L Inches	Floor Space Over All F to B R to L Inches
								Diam. and Face Inches	Rev. per Minute		
16 Gauge	516-A	$....	......	2600	37	15	....	28x4	80	36x 45	56x 60
	516-B	$....	......	3100	49	15	....	28x4	80	36x 56	58x 72
	516-C	$....	......	4000	61	15	....	28x4	80	36x 68	58x 86
	516-D	$....	......	5100	73	15	4½:1	26x4	175	40x 82	62x100
	516-E	$....	......	7500	97	15	4½:1	28x4	175	40x108	62x126
	516-F	$....	......	10000	121	15	6:1	28x4	250	52x134	62x154
11 Gauge	511-A	$....	......	3800	37	15	5:1	24x3½	200	38x 48	68x 70
	511-B	$....	......	4000	43	15	5:1	24x3½	200	38x 52	68x 76
	511-C	$....	......	4200	49	15	5:1	26x3½	200	38x 58	70x 82
	511-D	$....	......	4900	61	15	5:1	28x4	200	38x 68	70x 96
	511-E	$....	......	6000	73	15	6:1	30x5	200	38x 85	70x114
	511-F	$....	......	7200	97	15	6:1	30x5	200	42x112	70x140
	511-G	$....	......	10000	121	15	6:1	30x5	200	42x128	70x168
3/16 inch	500 3/16-A	$....	......	8700	37	15	7:1	24x4	250	42x 48	70x 82
	500 3/16-B	$....	......	9350	49	15	7:1	24x4	250	42x 60	70x 94
	500 3/16-C	$....	......	10300	61	15	7:1	24x5	250	46x 72	82x114
	500 3/16-D	$....	......	11500	73	15	7:1	32x5½	250	46x 84	82x128
	500 3/16-E	$....	......	12700	97	15	7:1	34x6	250	46x110	94x158
	500 3/16-F	$....	......	14000	121	15	16:1	26x5	300	46x132	96x176
	500 3/16-G	$....	......	17500	145	15	16:1	26x5	300	46x158	96x202
¼ inch	500¼-A	$....	......	9300	37	15	7:1	30x6	250	46x 54	100x106
	500¼-B	$....	......	11300	49	15	7:1	30x6	250	65x 68	100x120
	500¼-C	$....	......	13800	61	15	7:1	30x6	250	65x 82	110x132
	500¼-D	$....	......	17000	73	15	7:1	30x6	250	65x 98	110x144
	500¼-E	$....	......	21000	97	15	7:1	30x6	250	65x116	118x168
	500¼-F	$....	......	26000	121	15	21:1	30x5	350	65x140	124x192
	500¼-G	$....	......	32000	145	15	21:1	30x5	350	65x164	124x216
	500¼-H	$....	......	42000	194	15	21:1	30x6	350	65x212	130x266
⅜ inch	500⅜-A	$....	......	10000	37	15	7½:1	30x6	225	45x 62	98x104
	500⅜-B	$....	......	12000	49	15	7½:1	30x6	225	45x 74	98x116
	500⅜-C	$....	......	15000	61	15	7½:1	30x6	225	48x 88	104x128
	500⅜-D	$....	......	19000	73	15	7½:1	30x6	225	48x102	104x140
	500⅜-E	$....	......	25000	97	15	7½:1	30x6	225	48x118	104x164
	500⅜-F	$....	......	32000	121	15	24:1	32x6	350	50x148	110x200
½ inch	500½-A	$....	......	22000	49	6	7½:1	32x8	200	48x 62	104x127
	500½-B	$....	......	24000	49	10	7½:1	32x8	200	48x 62	104x127
	500½-D	$....	......	29000	73	18	7½:1	32x8	200	54x 94	144x151
	500½-C	$....	......	35000	97	18	7½:1	32x8	200	54x118	144x175
	500½-E	$....	......	42000	121	18	24:1	32x6	350	54x150	144x204

The "Toledo" No. 516-B, 49-Inch Gap Shear
(Old No. 432)



Capacity No. 16 Gauge

THIS cut illustrates our 49-Inch Plain Gap Shear, with 15-inch throat. The gap or throat permits cutting or splitting to the center of sheets 30 inches wide of unlimited lengths. Adjustable gauges are provided so that a continued strip, cut in line with the first cut, can be made.

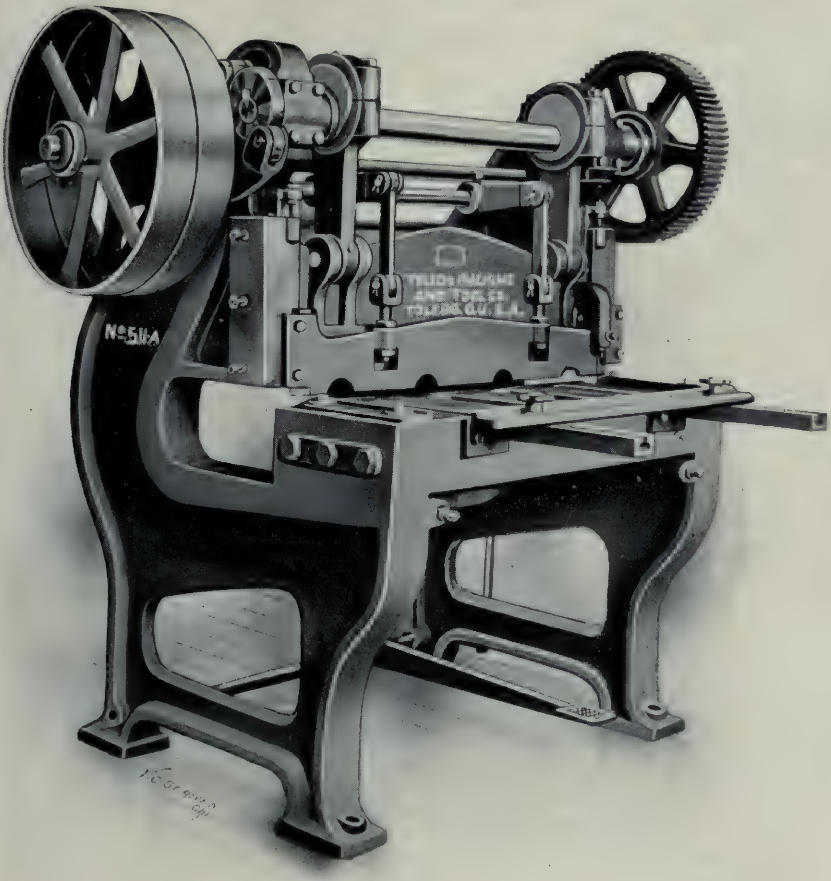
This shear has capacity for cutting mild steel or iron plate 16-gauge in thickness.

Built in all standard widths and with capacity as required.

Used extensively in the manufacture of steel ranges, tubs, vapor stoves and other work. Fitted with cam actuated automatic hold-down attachment, and with full set of front and rear extensions and adjustable gauges. Total weight about 3,000 lbs.

General description, page 359. Dimensions, page 371. Code Word..........

The "Toledo" No. 511-A, 37-Inch Gap Shear
(Old No. 441)



Capacity No. 11 Gauge

HOUSINGS of this Shear have a gap of 15 inches deep. Length of blades, 37 inches; capacity, No. 11 gauge metal. Suited for use in the manufacture of steel ranges, vapor stoves, automobiles and many other classes of work.

Gate or head of Shear is fitted with bronze adjusting gibs for taking up wear.

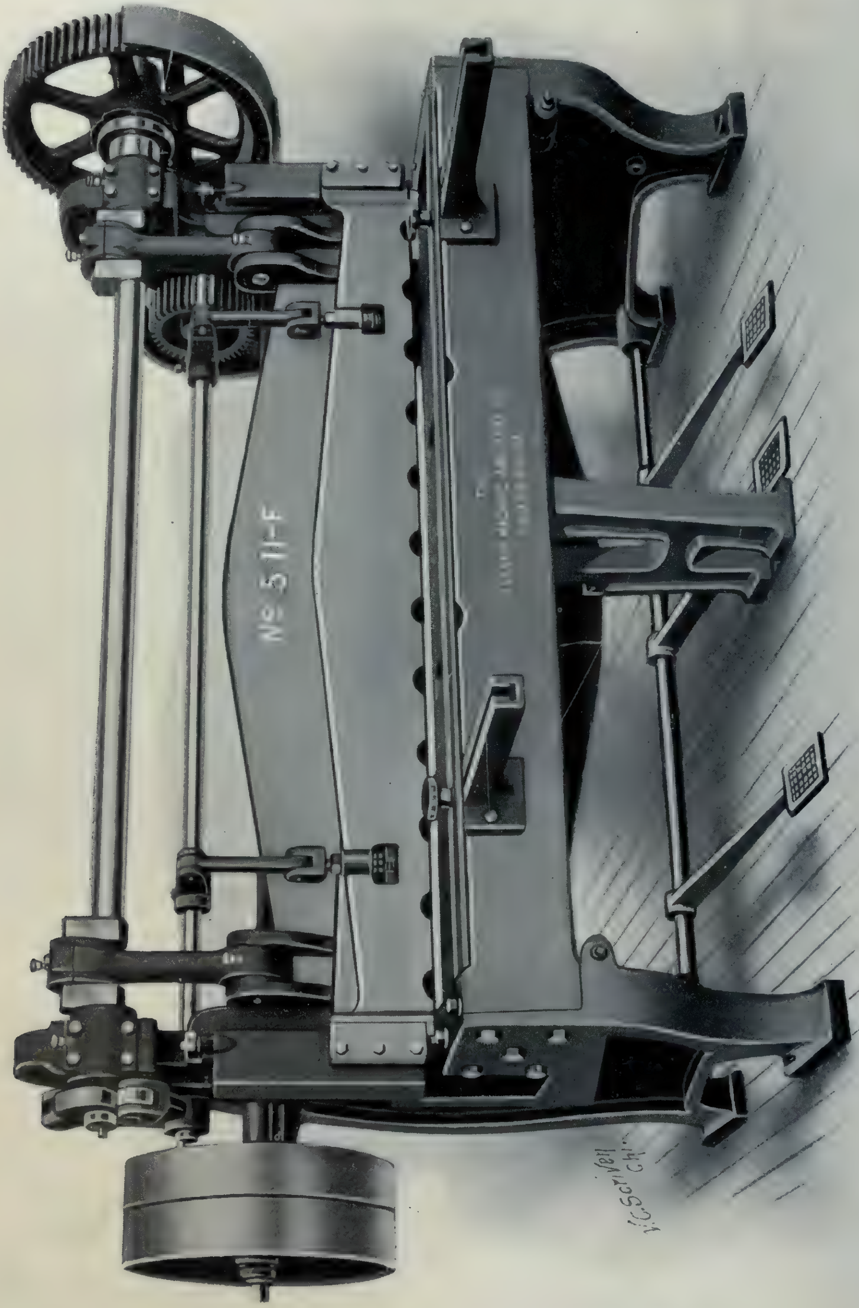
Automatic hold-down attachment holds sheets firmly in place while being cut, releasing grip automatically as soon as cut is made.

Gears are machine cut. Shear is fitted with our automatic three-engagement block clutch.

This style and capacity Shear built with blades from 37 to 121 inches in length, as ordered. Total weight about 3,800 lbs.

General description, page 359. Dimensions, page 371. Code Word............

The "Toledo" No. 511-F, 97-Inch Gap Shear—(Old No. 445)

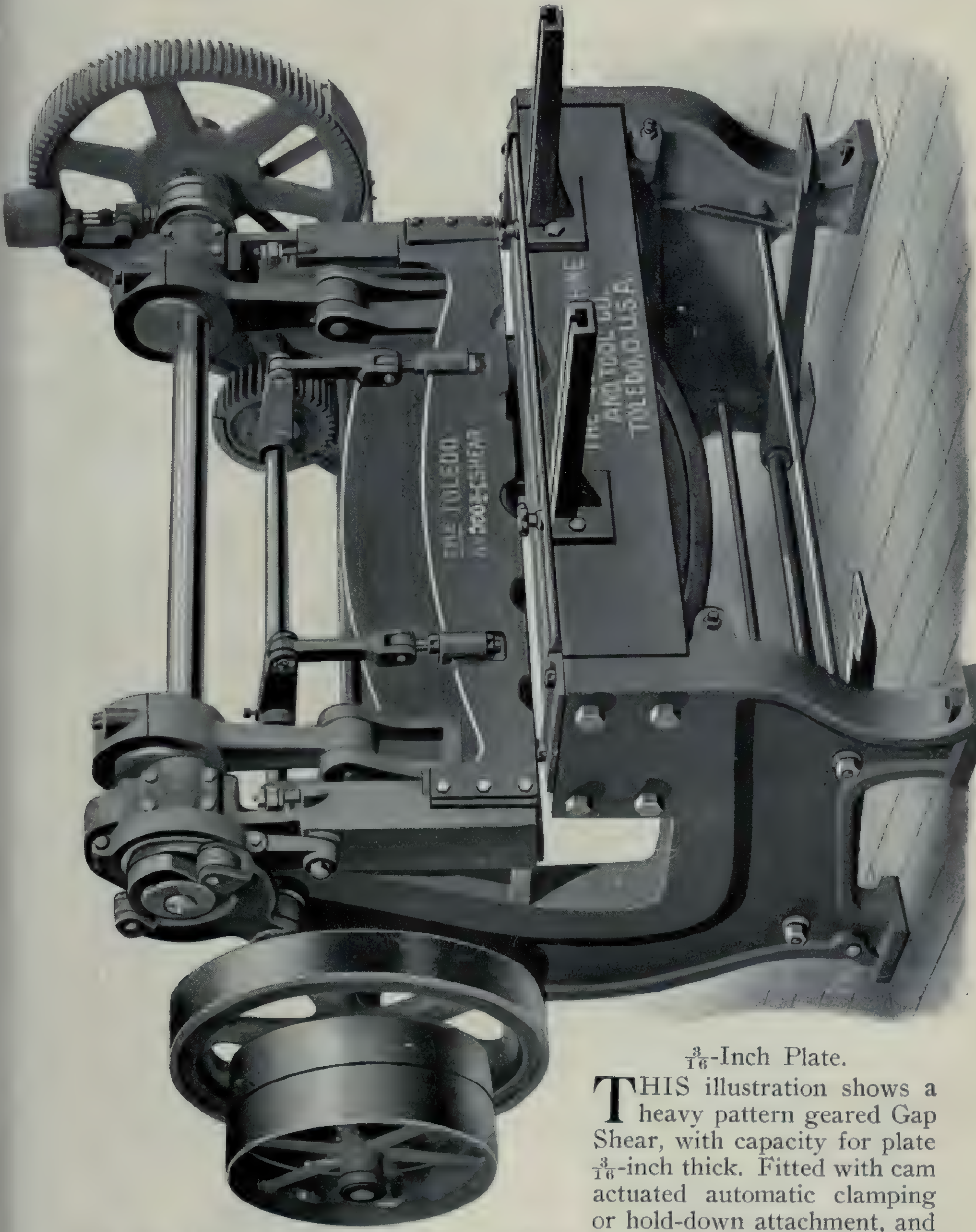


Capacity No. 11 Gauge. Total weight about 7,000 lbs.

General description, page 359. Dimensions, page 371. Code Word............

The "Toledo" No. 500 3/16-C, Gap Shear—(Old No. 453)

(Patented)



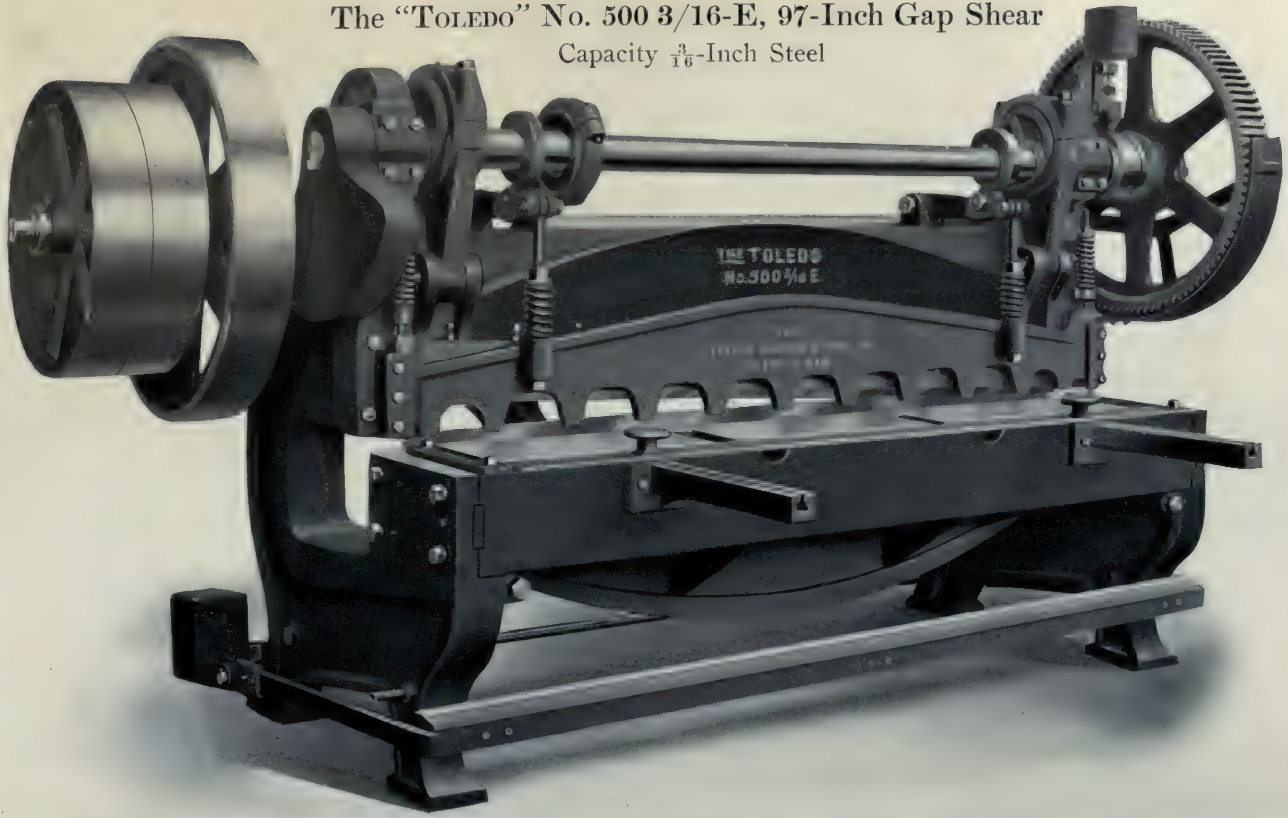
$\frac{3}{16}$-Inch Plate.

THIS illustration shows a heavy pattern geared Gap Shear, with capacity for plate $\frac{3}{16}$-inch thick. Fitted with cam actuated automatic clamping or hold-down attachment, and with the "Toledo" Automatic Sliding Block Clutch, with patented gravity release. These Shears are guaranteed to stand up continuously on work of maximum listed capacity. Total weight about 10,450 lbs.

General description, page 359. Dimensions, page 371. Code Word............

The "Toledo" No. 500 3/16-E, 97-Inch Gap Shear

Capacity $\frac{3}{16}$-Inch Steel



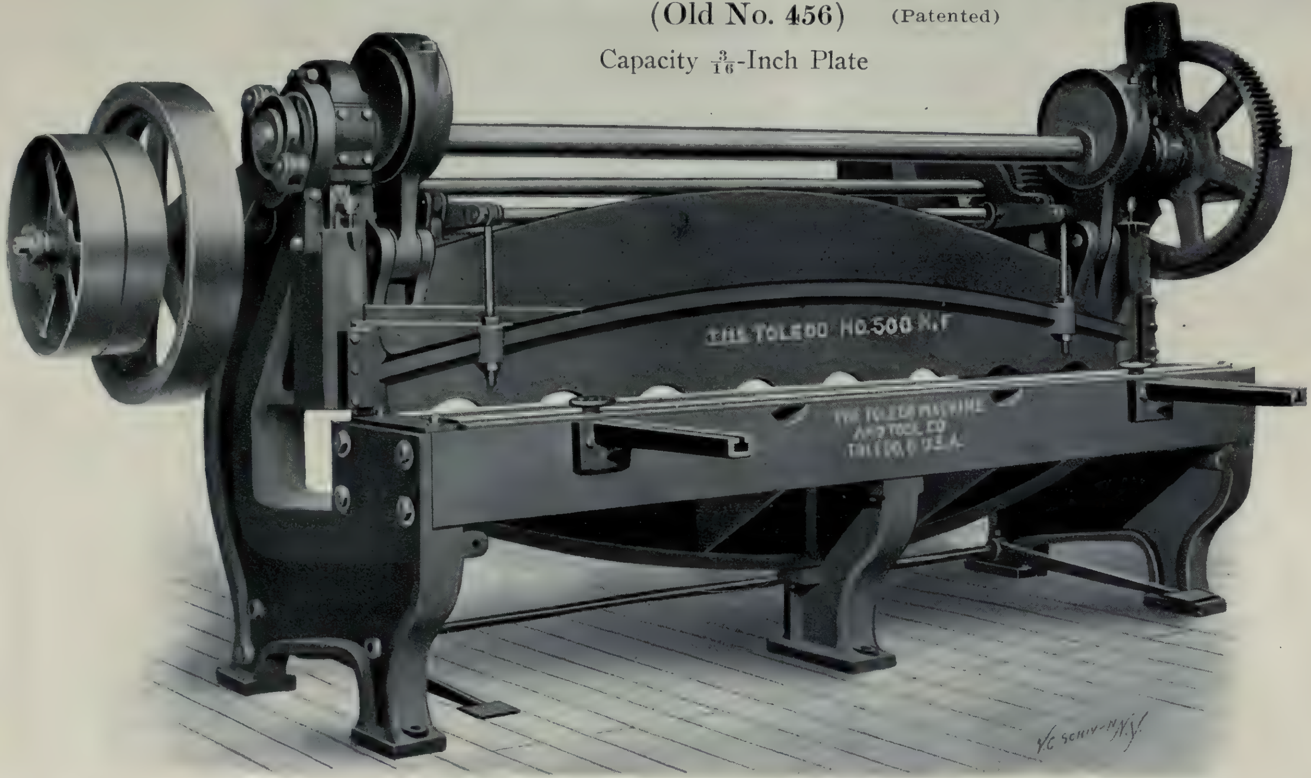
THIS Massive Gap Shear has capacity for cutting $\frac{3}{16}$-inch steel and lighter. Has throat or gap 15 inches deep. This Shear is widely used by automobile, steel range and electrical manufacturers, and by mills rolling the heavier gauges of steel sheets. Shear is fitted with "Toledo" Patented Three-Engagement Block Clutch, and with heavily counter-balanced cross-head. Total weight about 13,000 lbs.

General description, page 359. Dimensions, page 371. Code Word..........

The "Toledo" No. 500 3/16-F, 121-Inch Gap Shear

(Old No. 456) (Patented)

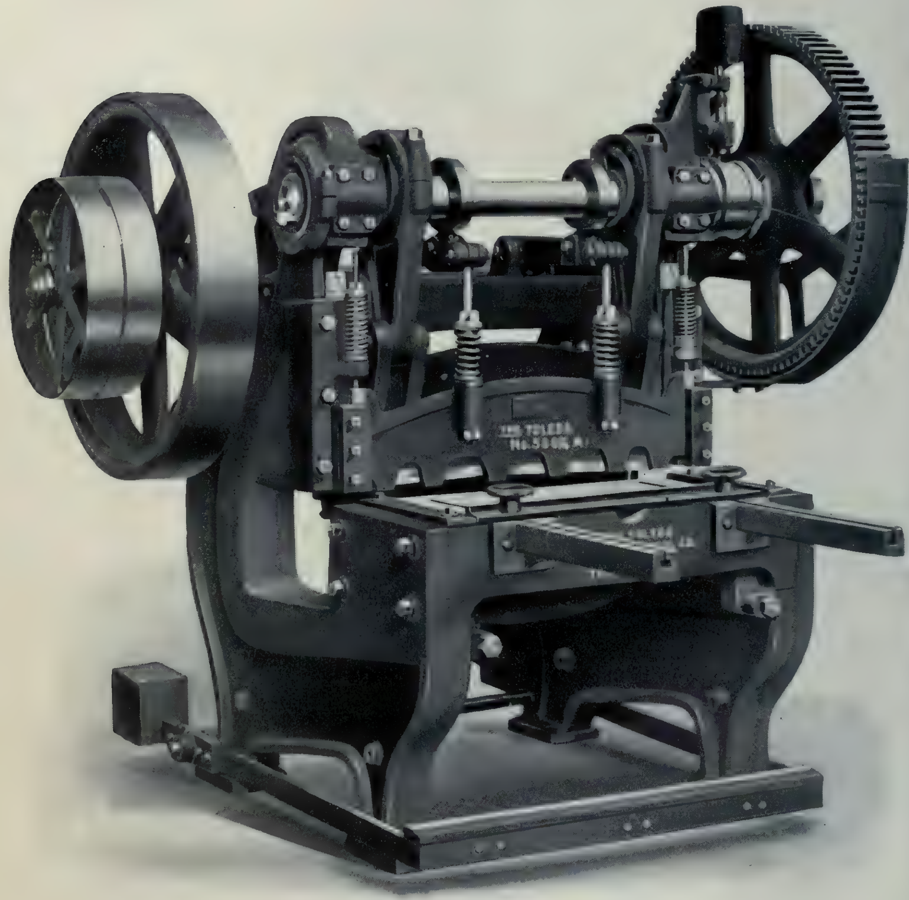
Capacity $\frac{3}{16}$-Inch Plate



THIS Shear, like the No. 500$\frac{3}{16}$-E, is specially suited for a wide range of heavy work on plate $\frac{3}{16}$-inch thick; the Shear is fitted with a center standard and is of an unusually rigid construction for heavy work. Total weight about 14,600 lbs.

General description, page 359. Dimensions, page 371. Code Word..........

The "Toledo" No. 500¼-A, 37-Inch Gap Shear



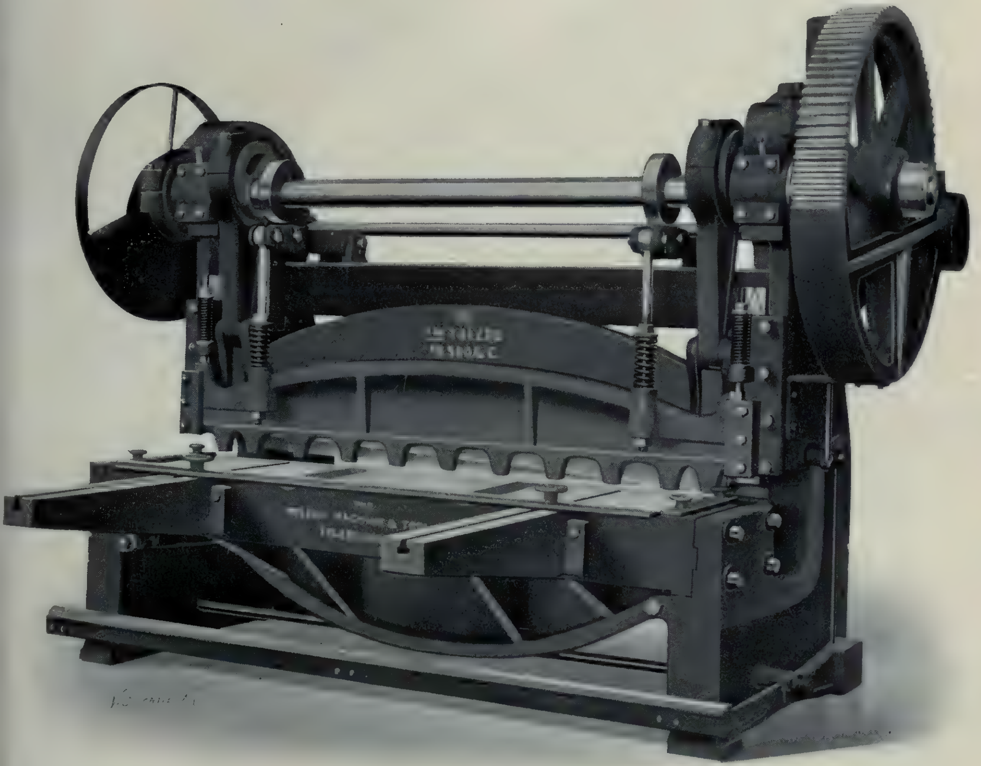
Capacity ¼-Inch Plate

OUR new heavy pattern Gap Shear, as shown in illustration, will shear ¼-inch plate and lighter. Fitted with three-engagement block clutch, cam actuated hold-down attachment and adjustable front, back and side gauges.

Admirably adapted to the requirements of manufacturers of agricultural implements, vehicles, automobiles, structural steel and other heavy metal work. Total weight about 9,300 lbs.

General description, page 359. Dimensions, page 371. Code Word............

The "Toledo" No. 500¼-E, 97-Inch Gap Shear



Capacity ¼-Inch Plate

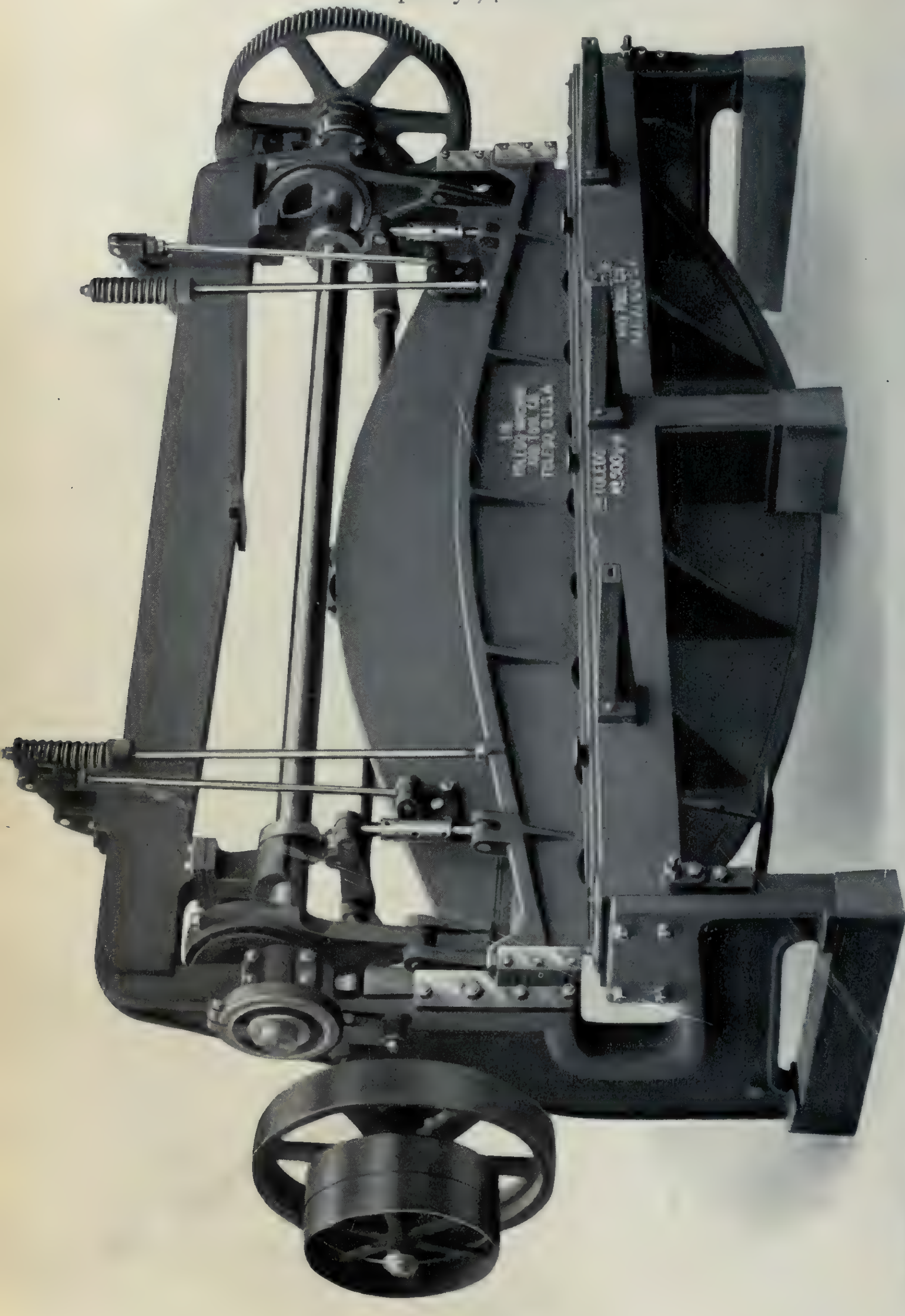
THIS Shear is similar in design throughout to the one on the preceding page, but is proportionately heavier, and has capacity for shearing ¼-inch steel plate the full length of the blades, 97 inches. Weight about 21,000 lbs.

General description, page 359. Dimensions, page 371. Code Word...........

The "Toledo" No. 500¼-H, 194-Inch Gap Shear
(Old No. 458)

(Patented)

Capacity ¼-Inch Plate



THIS illustration represents our 16-foot Gap Plate Slitting and Squaring Shear. Capacity for slitting or squaring ¼-inch plate. The blades are unusually heavy, made in two sections each, and fitted with a convenient adjustment for taking up wear. The machine is double back geared and fitted with automatic three-engagement block clutch. Designed for preparing strips or sheets for automobile frames, structural steel, etc. Total weight about 42,000 lbs.

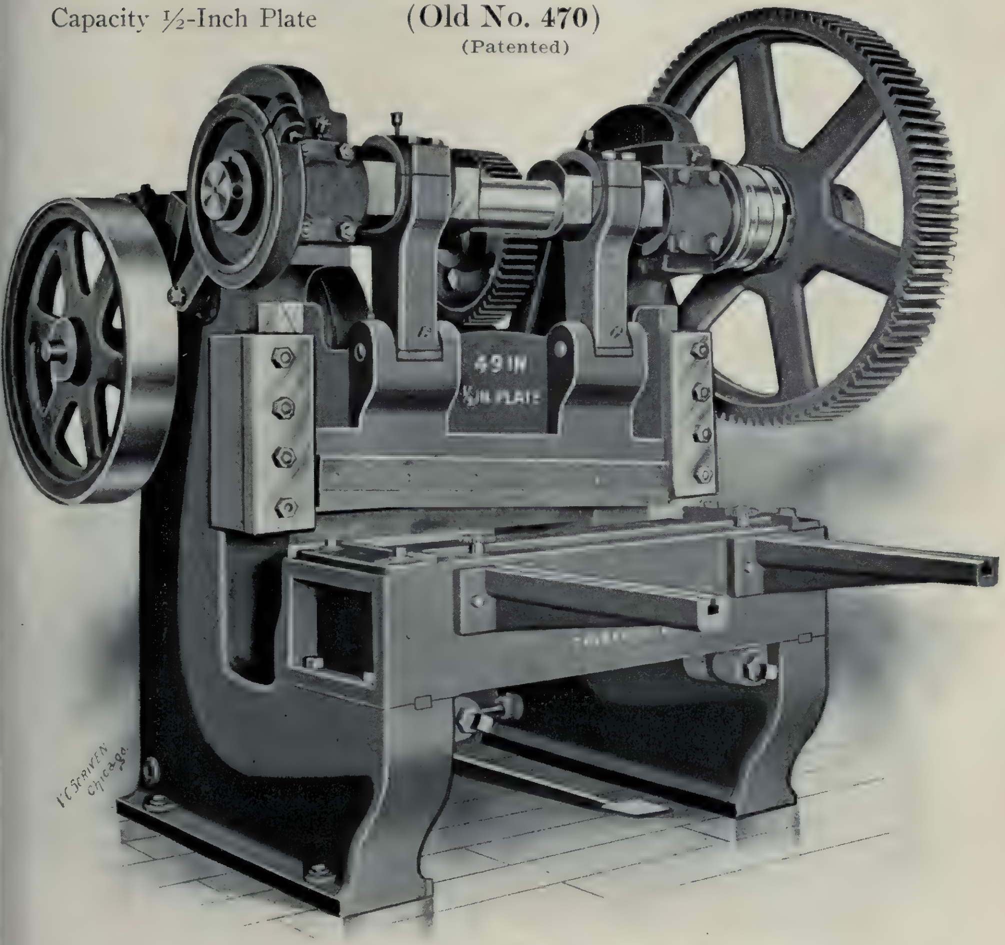
General description, page 359. Dimensions, page 371. Code Word

The "Toledo" No. 500½-A Gap Shear

Capacity ½-Inch Plate

(Old No. 470)

(Patented)



THIS cut illustrates our Geared Gap Shear No. 500½-A. Depth of throat or gap, 6 inches. Gap can be increased to 10 inches if required. Capacity to cut plates of iron and steel ½-inch thick. Used largely in rolling mills, for structural iron and car work, etc. Automatic three-engagement clutch is provided on crank or main shaft, which operates automatically, causing cutting bar to stop at top of stroke after a complete revolution of main shaft. Crank shaft is of forged steel. Adjustment is provided for taking up wear of the shear blades and for keeping lower blade flush with the working surface of the table. Shear is provided with machine cut gearing, and is arranged with exceptionally long slide bearings with wedge adjustment which takes up the wear and prolongs the life of the shear blades.

This style and capacity Shear built with blades from 49 to 121 inches in length, as ordered. Total weight about 22,000 lbs.

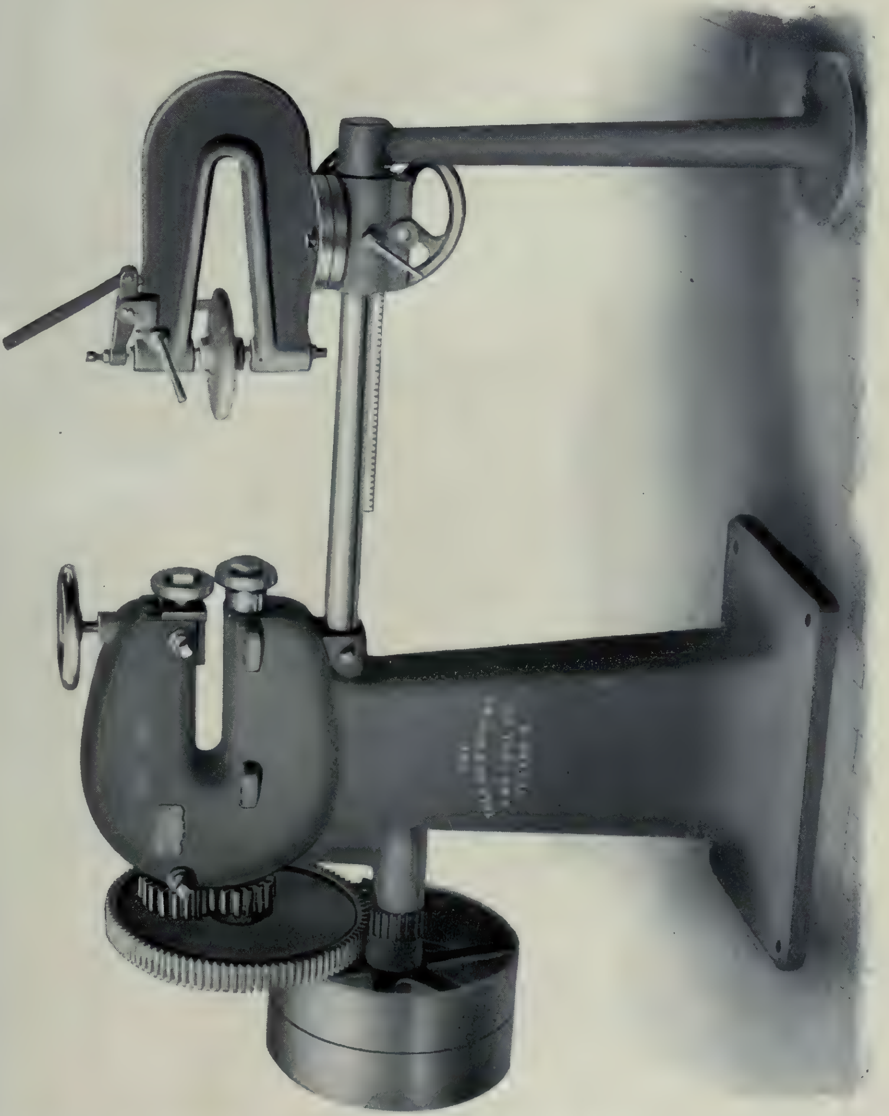
General description, page 359. Dimensions, page 371. Code Word............

The "Toledo" Single Slitting Machines.

THE "Toledo" Single Slitting Machines illustrated on pages 383 to 388, are built either for straight or circular work. With the circular attachment, they are extensively used for cutting large blanks for enamel ware, armature discs, and other work of this nature. When intended for straight slitting they are provided with adjustable table and gauges. Built in ten sizes, as described below.

	16 Gauge		12 Gauge		10 Gauge			Plate		
								¼-inch	⅜-inch	½-inch
Number of Machine	380	381	382	383	384	385	386	387	388	389
Page of Catalogue	383	384	....	....	....	....	....	386	....	....
Code Word										
Price with one pair of cutters, no circular attachment	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price for extra cutters, per pair	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	800	1200	1600	1850	3500	4200	5000	4000	6000	9000
Diameter of cutters ... inches	4	4½	5	5	6	6	6	9	12	15
Depth of throat ... inches	12	24	18	24	21	25	31	24	30	36
Will slit in width up to ... inches	10	22	16	22	20	24	30	22	28	34
Largest diameter circular attachment will cut ... inches	60	60	72	72	100	100	100	88	88	88
Smallest diameter circular attachment will cut ... inches	10	10	12	12	14	14	14	16	18	20
Size of driving pulleys ... inches	16 x 4	16 x 4	20 x 5	20 x 5	28 x 5	28 x 5	28 x 5	40 x 6	40 x 6	40 x 6
Speed of driving pulleys ... R. P. M.	300	300	275	275	220	220	220	200	150	100
Proportion of gearing	4:1	4:1	5:1	5:1	5½:1	5½:1	6:1	10:1	17:1	25:1
Floor space over all, F. to B., R. to L. ... inches	40 x 18	50 x 18	60 x 24	66 x 24	65 x 30	70 x 30	76 x 30	74 x 50	90 x 60	110x60

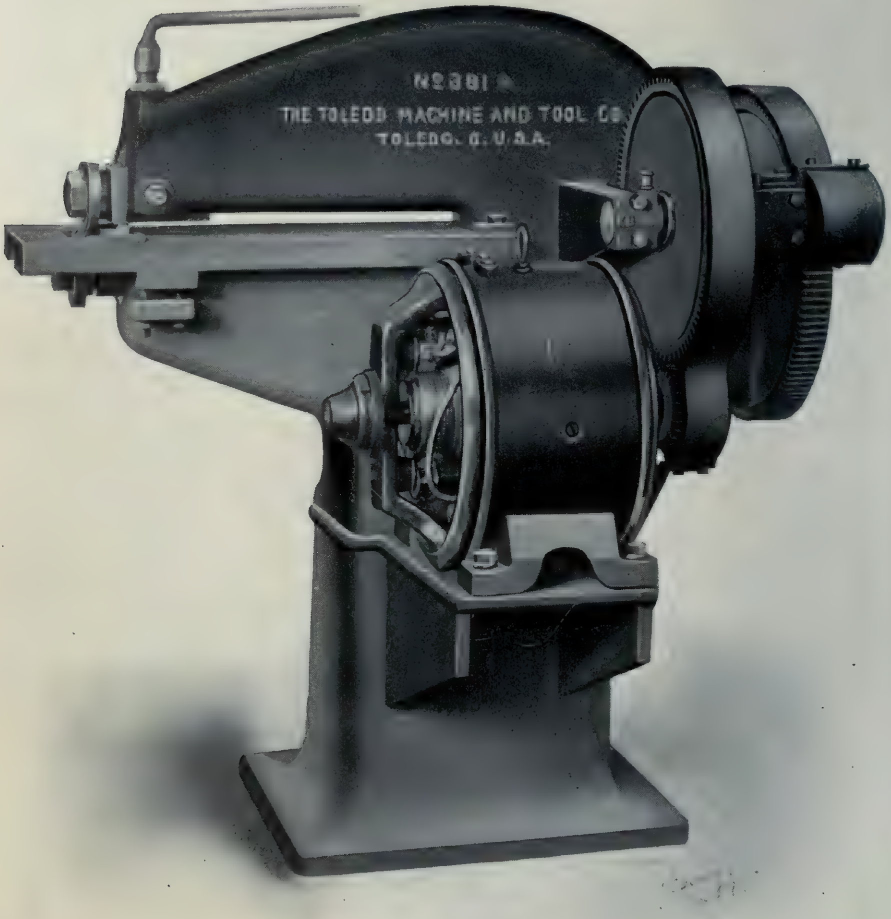
The "Toledo" No. 380 Single Slitting Machine With Circular Attachment



THIS illustration shows our No. 380 Single Rotary Slitter, fitted with circling attachment, adapting the machine to cutting circles or discs of various diameters for drawing or deep stamping for enameled ware and other work. A table with adjustable gauge is also provided for straight slitting or shearing. Total weight about 800 lbs.

General description, page 382. Dimensions, page 382. Code Word...........

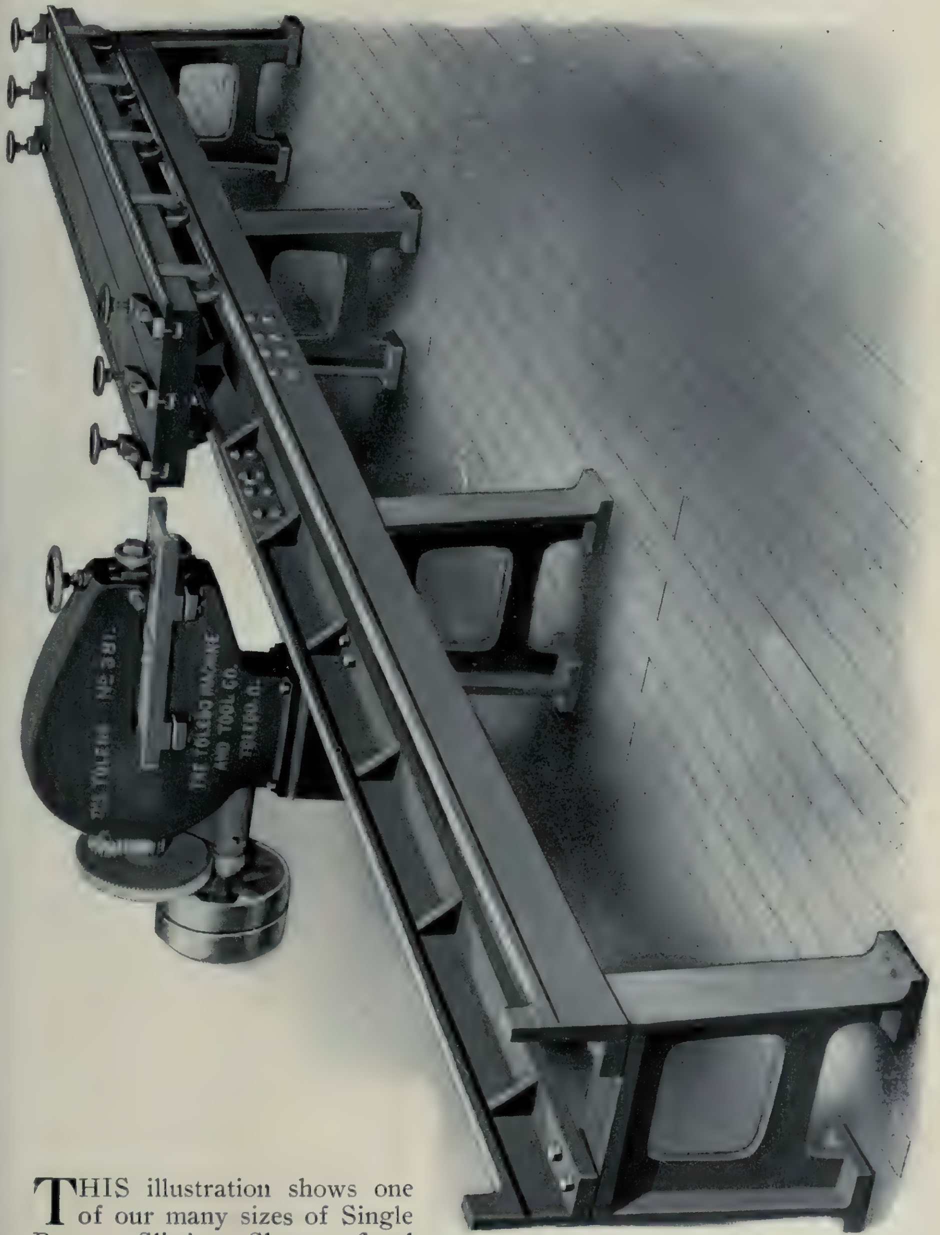
The "Toledo" No. 381 Single Slitting Machine



THIS Deep Gap Slitter as shown, is fitted with direct-connected motor, and has capacity for cutting 16-gauge metal into strips up to 22 inches wide. The machine can also be fitted with circling attachment, or with sliding table and ways to accommodate sheets of various lengths. Total weight about 1,200 lbs.

General description, page 382. Dimensions, page 382. Code Word...........

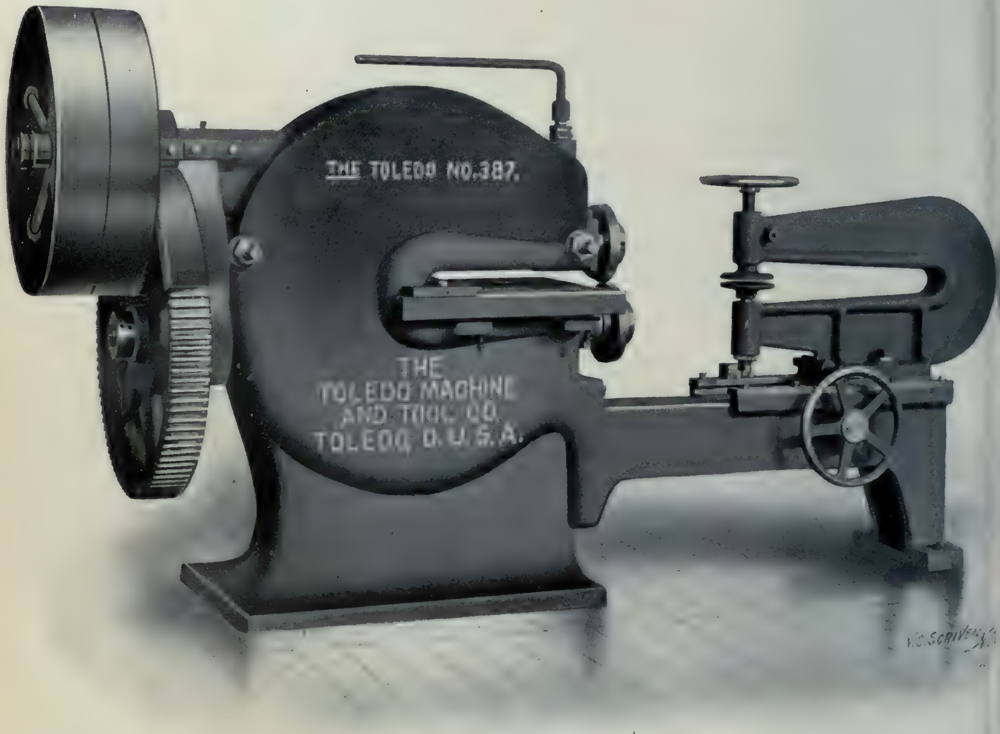
The "Toledo" No. 381 Single Slitting Machine



THIS illustration shows one of our many sizes of Single Rotary Slitting Shears, fitted with sliding table and ways, which can be supplied with any of our slitters when ordered. Fitted with direct-connected motor, if desired. These machines are built for all thicknesses of metal up to and including ¾-inch plate.

General description, page 382. Dimensions, page 382. Code Word............

The "Toledo" No. 387 Single Rotary Slitter With Circling Attachment



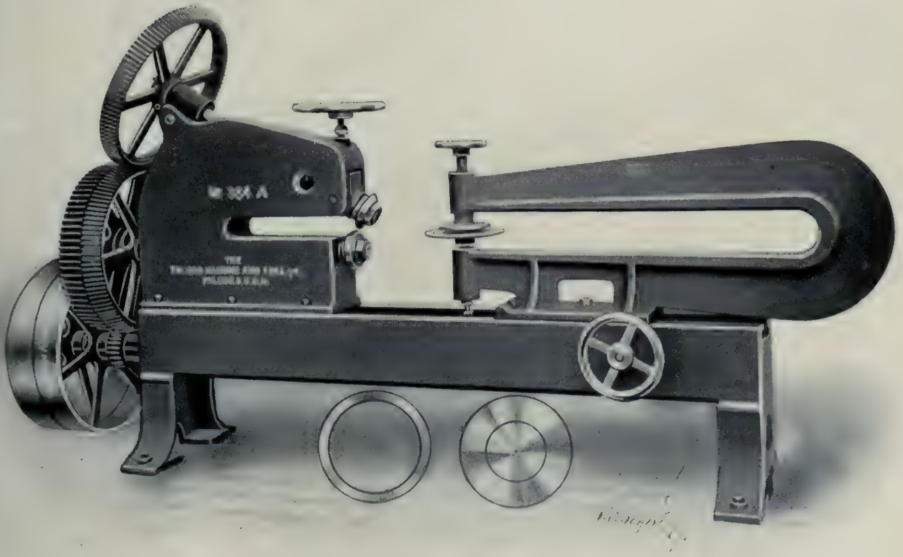
THIS machine has capacity for slitting ¼-inch plate and for circles or discs as small as 16 inches in diameter in ¼-inch plate, and of a smaller diameter in thinner gauges.

The circling attachment is easily and quickly adjusted for obtaining circles of any required diameter within the capacity of the machine.

The attachment illustrated will accommodate circles or plates up to and including 60 inches in diameter. Total weight about 4,000 lbs.

General description, page 382. Dimensions, page 382. Code Word............

The "Toledo" No. 384-A Circular Shear With Angular Cutter Shafts

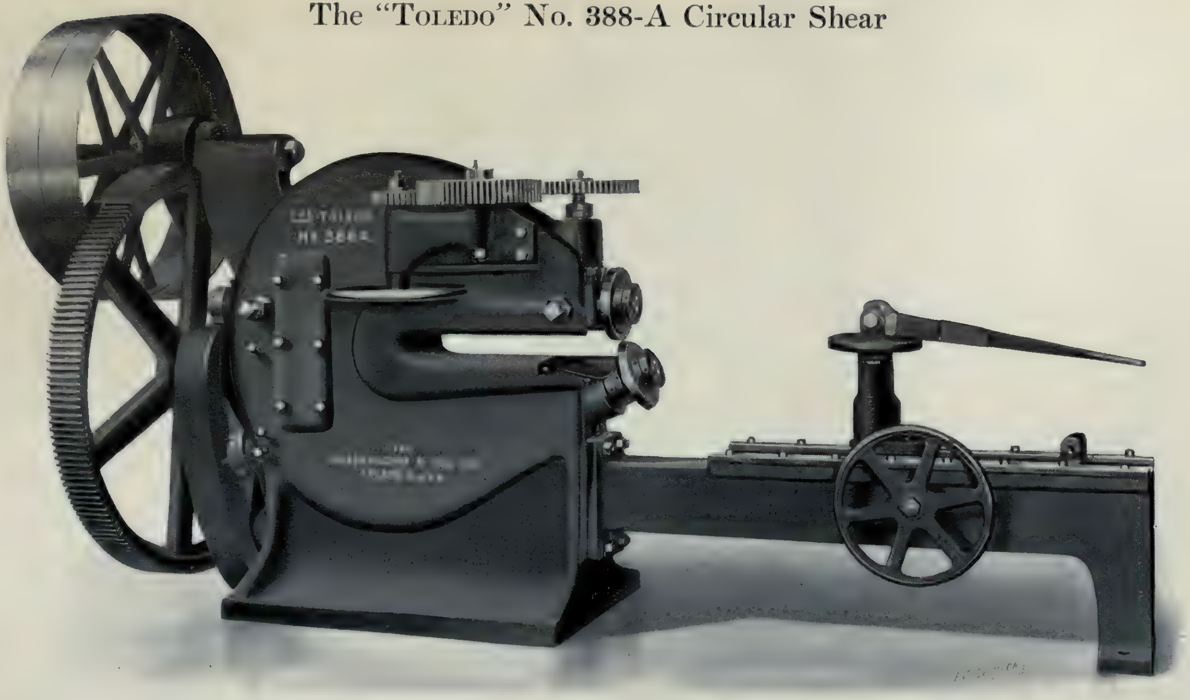


THE above illustration shows our No. 384-A Circular Shear, which is one of a line corresponding in size and capacity to the Single Slitting Machines Nos. 380, 381, 387, pages 383 to 388.

The above shears are built with angular cutter shafts, adapting them especially to the cutting of inside as well as outside circles, such as armature discs, rings, etc. The illustration shows the machine fitted to cut blanks to a diameter of 100 inches.

Number of Machine	380-A	382-A	384-A	388-A
Price with circular attachment	$....	$....	$....	$....
Code word, with circular attachment ...	.....	.....	.....	.....
Weight	900	1800	3700	8200
Will cut metal ....gauge	16	12	10	⅜ Plate
Other dimensions, see page 382, machines Nos.	380	382	384	388

The "Toledo" No. 388-A Circular Shear



THIS illustration shows a heavy pattern Circular Slitting Shear used for cutting discs and rings of ⅜-inch plate for blowers and other heavy work. The Shear has a depth of throat of 30 inches and has capacity for cutting discs of ⅜-inch plate and lighter, up to 130 inches diameter. As shown, this Shear is equipped with a high geared elevating attachment for quickly raising or lowering the upper cutter. All gears are machine cut and encased in suitable guards. Total weight about 8,200 lbs.

Dimensions, page 387.

Code Word...........

The "Toledo" Gang Slitting Machines

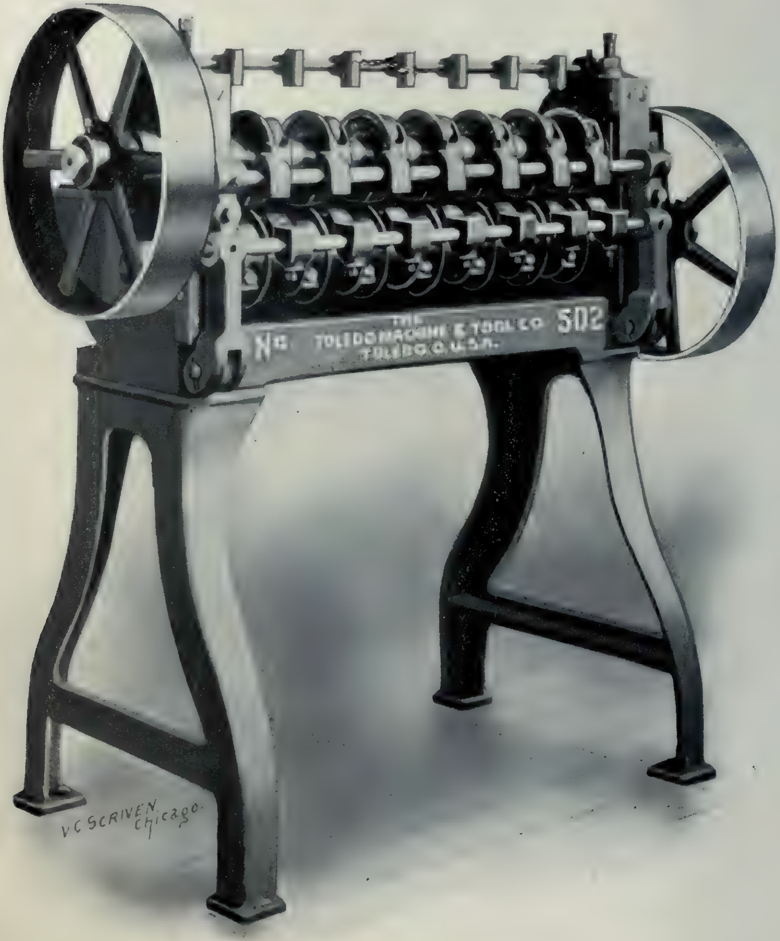
THESE machines are fitted with phosphor bronze shaft bearings, hammered high carbon steel shafts and with adjustable cutter hubs, with our special wedge key clamping device.

These machines are guaranteed to produce the most accurate results obtainable in machines of this type.

	26 Ga.	24 Ga.	18 Gauge			14 Gauge			10 Gauge					¼ in. Plate
Number of Machine	502	503	512	513	514	522	523	524	534	535	536	537	538	545
Old Number	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Page of Catalogue	390	391	.....	392	.....	.....	.....	.....	.....	.....	.....	.....	393	394
Price of machine with hand feed and counter—no cutters	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Code Word	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Price of machine with foot feed and counter—no cutters	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Code Word	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Price of cutters only, each	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Code Word	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Price of cutters and hubs, per pair	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Code Word	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Price of grinder with countershaft for drum	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....	$....
Code Word	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Weight complete with countershaft, about ... pounds	1500	2000	2000	2500	3500	5000	6500	7500	7000	7500	8500	12000	16000	11500
Width of cut ... inches	28	32	30	36	48	30	36	48	48	60	72	96	120	30
Distance between gauges ... inches	29	33	31	37	49	32	38	50	50	62	74	98	122	32
Diameter of cutters ... inches	6	6	7½	7½	7½	8½	8½	8½	10	10	10	10	10	12
Diameter of cutter shaft ... inches	2½	2¾	3½	3½	4	4¼	4¼	4¼	5½	5½	5½	5½	5½	7
Size of pulleys on machine ... inches	18x3	20x3½	28x4	28x4	28x4	28x4	28x4	28x5	20x5	20x5	20x5	24x5	24x5	24x6
Size of pulleys on countershaft inches	12x3	14x3½	28x8	28x8	28x8	14x5	14x5	14x6	20x5	20x5	20x5	24x6	24x8	24x6
Speed of pulley on countershaft R.P.M	120	115	350	350	350	450	450	450	350	350	350	450	450	300
Speed of cutter shaft ... R.P.M.	80	80	45	45	45	32	32	32	14	14	14	14	14	9
Proportion of gearing	.....	.....	8:1	8:1	8:1	7:1	7:1	7:1	24:1	24:1	24:1	32:1	32:1	36:1
Floor space of base, F. to B., R. to L. ... inches	26x40	26x44	30x44	30x50	30x66	30x50	30x56	30x62	.....	.....	.....	.....	.....	34x83
Floor space over all, F. to B., R. to L. ... inches	40x56	40x60	45x68	45x74	47x91	56x80	56x86	56x92	.....	.....	.....	.....	.....	54x96

The "Toledo" No. 502 Gang Slitting Machine

Capacity No. 26 Gauge



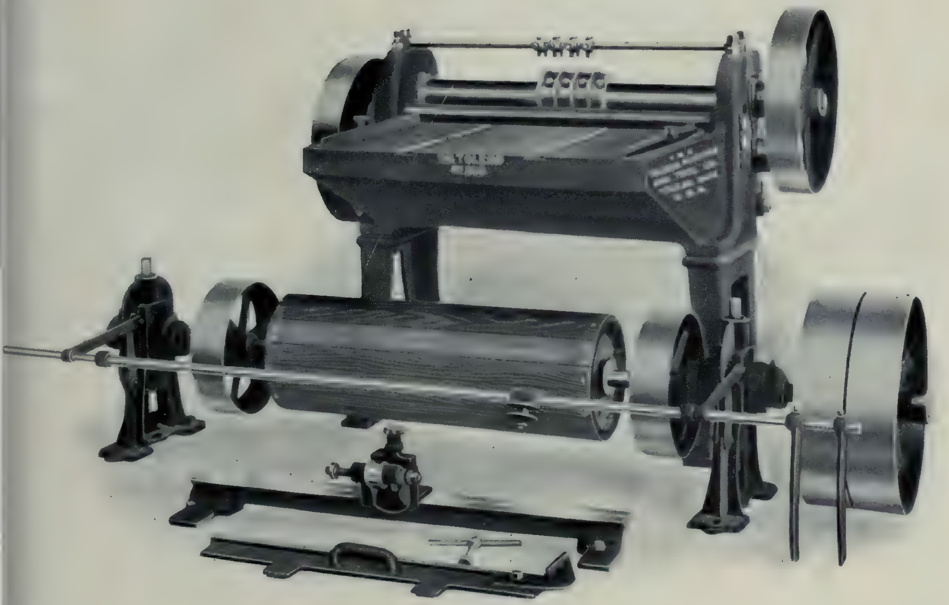
ADAPTED to trimming and slitting large sheets of No. 26 gauge steel and other light metals into narrow widths for keg and tin can bodies and similar work. Total weight about 1,500 lbs.

General description, page 389. Dimensions, page 389.

Code Word, with Hand Feed and Countershaft, no Cutter......
Code Word, with Foot Feed and Countershaft, no Cutter.......
Code Word, as shown, complete ....

The "Toledo" No. 503 Gang Slitting Machine

Capacity No. 24 Gauge



THE Gang Slitter shown in this illustration, has capacity for slitting 24-gauge sheet steel, and will carry ten or twelve pairs of cutters. The slitting is done with the greatest accuracy, the strips coming from the machine practically true.

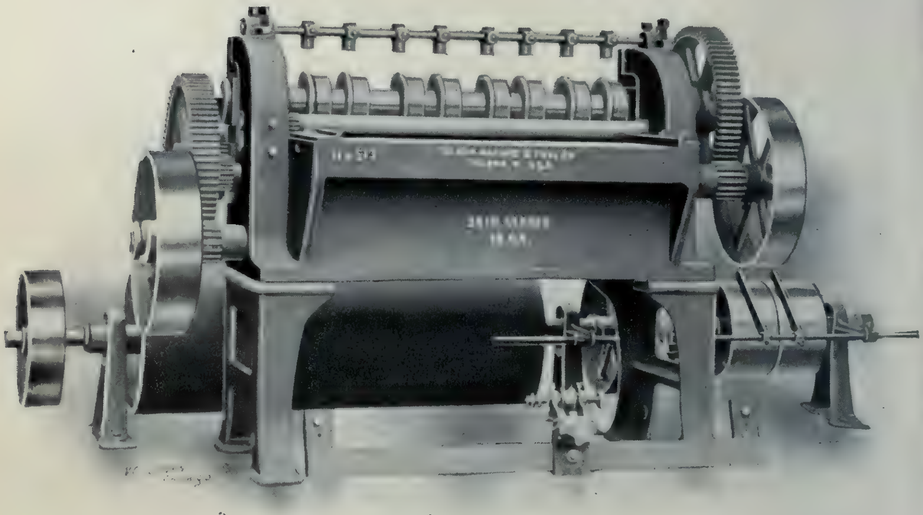
Fitted with front and rear feeding rolls, with positive gear drive.

Cutters are easily and accurately adjusted. Cutters may be ground or sharpened without removing them from the machine. Total weight about 2,000 lbs.

General description, page 389. Dimensions, page 389. Code Word...........

The "Toledo" No. 513 Gang Slitting Machine

(Old No. 316)



Capacity No. 18 Gauge

THIS Gang Slitter is fitted with *grinding attachment,* which is easily and quickly attached and which enables the cutters to be kept in perfect order without removal from shaft or alteration in adjustment.

This slitter has capacity to trim sheets 36½ inches wide, 18-gauge metal.

Adapted to vapor, gas and oil stove work, etc.

Built in various sizes for different gauges of metal; plain or geared.

All our gang slitters are furnished with feeding table, front and rear feeding rolls and countershaft. Total weight about 2,500 lbs.

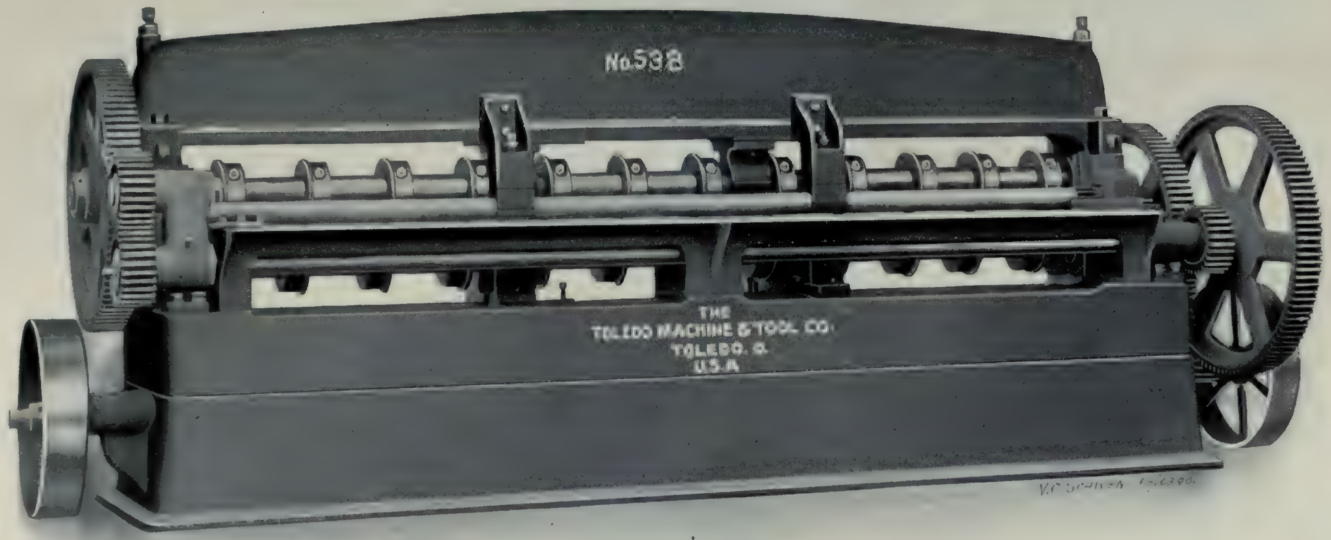
General description, page 389. Dimensions, page 389.

Code Word, complete as shown ....

Code Word, with Counter, no Cutters, with Grinding Drum for Countershaft

Code Word with Counter only, no Cutters or Drum............

The "Toledo" No. 538 Gang Slitting Machine
(Old No. 319)

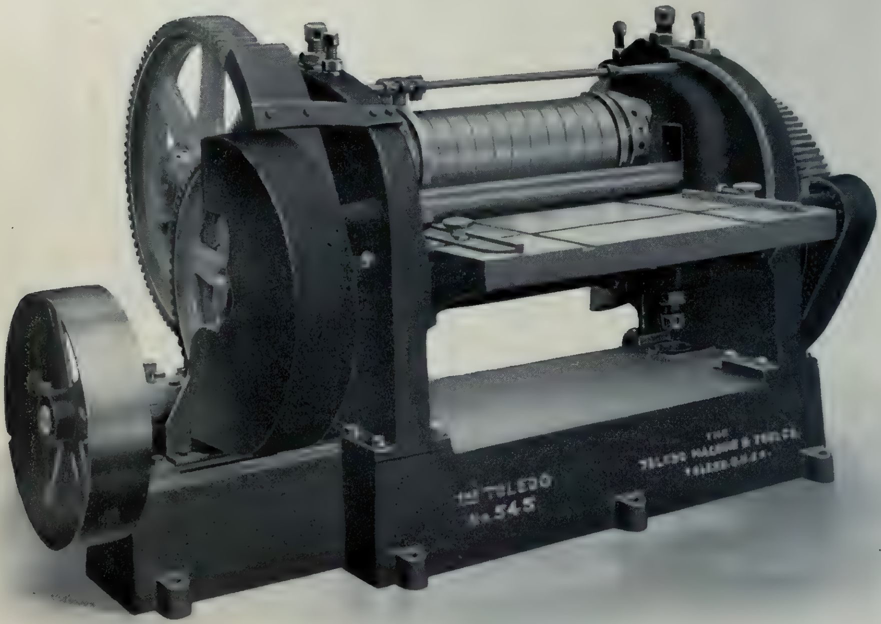


Capacity No. 10 Gauge

THIS illustration shows our extra heavy pattern double back geared Power Gang Slitter for 10-gauge steel plate, 144 inches wide. This machine is fitted with front and rear feeding rolls and with adjustable cutter hubs. Designed for trimming and slitting heavy steel, zinc, brass or other metal plates. Total weight about 16,000 lbs.

General description, page 389. Dimensions, page 389. Code Word...........

The "Toledo" No. 545, 30-Inch Gang Slitting Machine

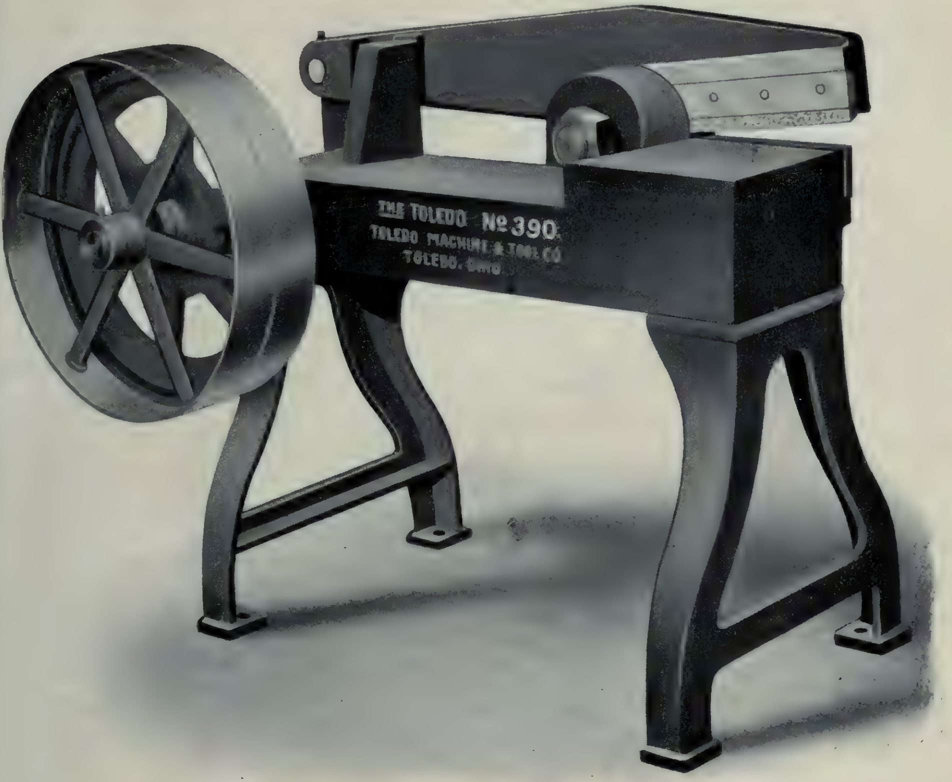


THIS machine is powerfully geared and has capacity for trimming and cutting a 30-inch wide sheet of ¼-inch steel into five strips of any desired width, in one operation.

Machine is furnished complete with counter shaft and belt pulleys, and fitted for receiving grinding attachment. Total weight about 11,000 lbs.

Dimensions, page 389. Code Word...........

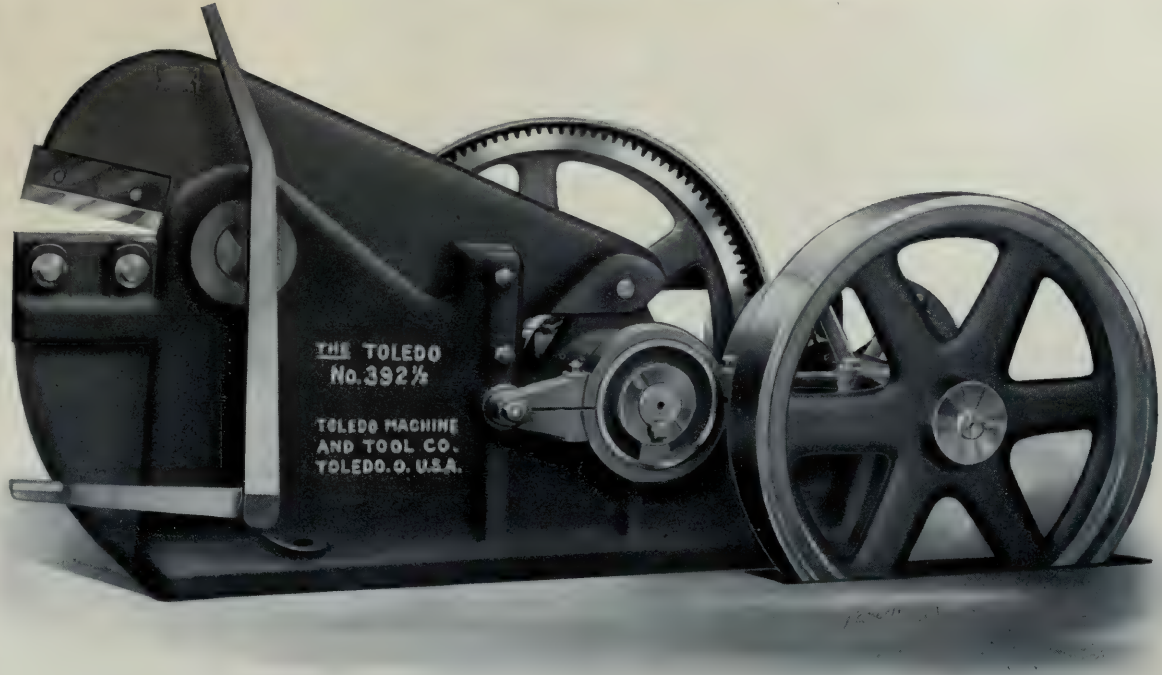
The "Toledo" No. 390 Alligator Shear



THIS Shear is widely used for cutting up metal scrap, having capacity for cutting multiple thicknesses of steel scrap up to ⅛-inch thick, the full length of blades, 12 inches. Shear has capacity for cutting off ½-inch round bars.

Number of Machine	390	391	392	392½	393	394
Old Number	....	1	....	....	....	....
Page of Catalogue	395	....	....	396	397	....
Code Word	....	....	....	....	....	....
Price	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about .... pounds	950	2000	4000	8200	15000	27000
Length of blades .... inches	12	12	16	12	20	24
Will cut round bar ...... inches	½	1	1½	2	2½	3½
Will cut sheet steel full length of blade ..... inches	⅛	⅛	¼	⅜	½	¾
Diam. and face of belt wheel .... inches	24 x 3	24 x 3	24 x 4	24 x 5	28 x 6	28 x 6
Proportion of gearing	....	....	4:1	8:1	6:1	7½:1
Diameter and face of balance wheel .... inches	....	....	....	42x6½	38 x 6	52 x 7
Speed of belt wheel ... R. P. M.	80	80	375	225	375	375
Floor space over all, F. to B., R. to L. ... inches	32 x 60	32 x 64	....	60x106	....	....

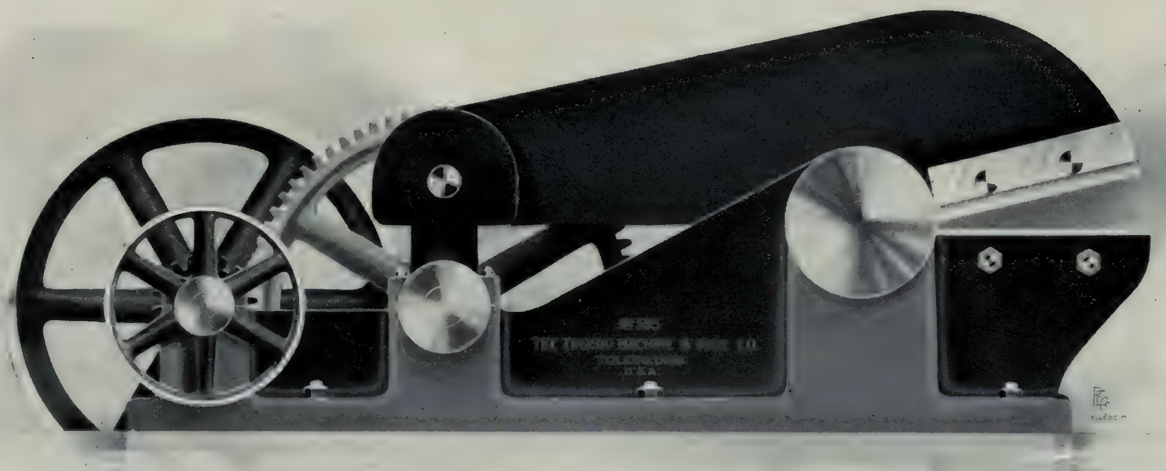
The "Toledo" No. 392½ Alligator Shear



THIS powerfully built Shear has capacity for shearing round bars up to and including 2 inches in diameter, and will shear ⅜-inch plates, 12 inches wide, or the equivalent. Shear is fitted with the "Toledo" Three-Engagement Block Clutch, which can be thrown into action by either hand or foot pressure. Total weight about 8,000 lbs.

Dimensions, page 395. Code Word...........

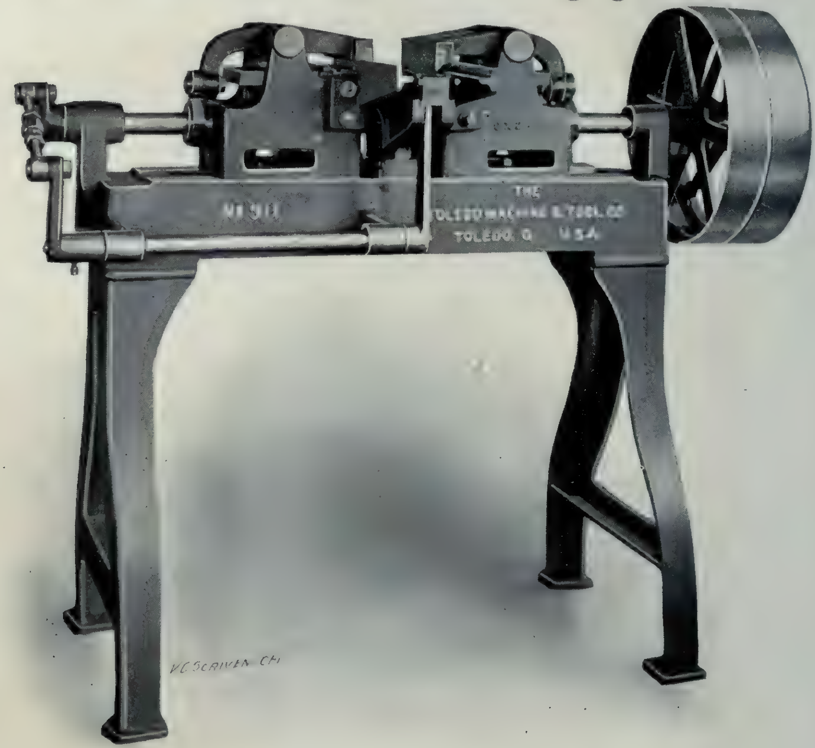
The "Toledo" No. 393 Alligator Shear



THIS Shear is designed for cutting round bars up to and including 2½-inch diameter and flat bars or plate ½ inch by 24 inches, and is specially suited for cutting metal scrap of various shapes or forms within the capacity of the machine. Total weight about 15,000 lbs.

General description, page 395. Dimensions, page 395. Code Word...........

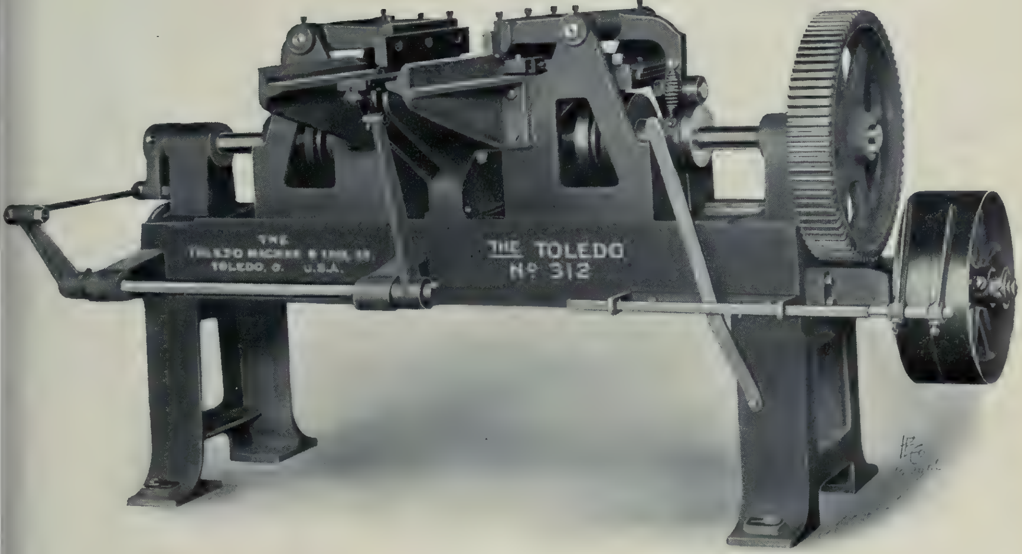
The "Toledo" No. 311 Automatic Edging Machine



MACHINE illustrated is designed for automatically forming or folding both hooked edges for side seams on parallel blanks for bodies of baking powder boxes, meat and fruit cans, flaring pails, pieced tinware and a similar line of work. The blank is placed in position on the carrier and automatically carried forward to the forming edges of the machine; the edges are formed or folded and automatically ejected at the rate of from 40 to 60 pieces per minute.

Number of Machine	311	312	313	313A
Old Number	301	....	....	....
Page of Catalogue	398	399	....	400
Code Word				
Price of Machine	$.....	$.....	$.....	$.....
Weight complete, about ....pounds	1000	2000	5300	5600
Length of lock seam that can be formed ....inches	8	14	28	30
Length of shortest and longest blanks ....inches	4 to 14	6 to 20	10 to 28	10 to 31
Average capacity per day....No. of bl'ks	30000	18000	18000	18000
Size of driving pulleys, T. and L...inches	18 x 3	16 x 3	20 x 4	20 x 4
Speed of driving pulleys.........R. P. M	60	125	135	135
Proportion of gearing.................	....	4½:1	4½:1	4½:1
Working strokes per minute...........	60	30	30	30
Floor space over all, F. to B., R. to L..in.	26 x 56	36 x 92	64 x 120	64 x 120

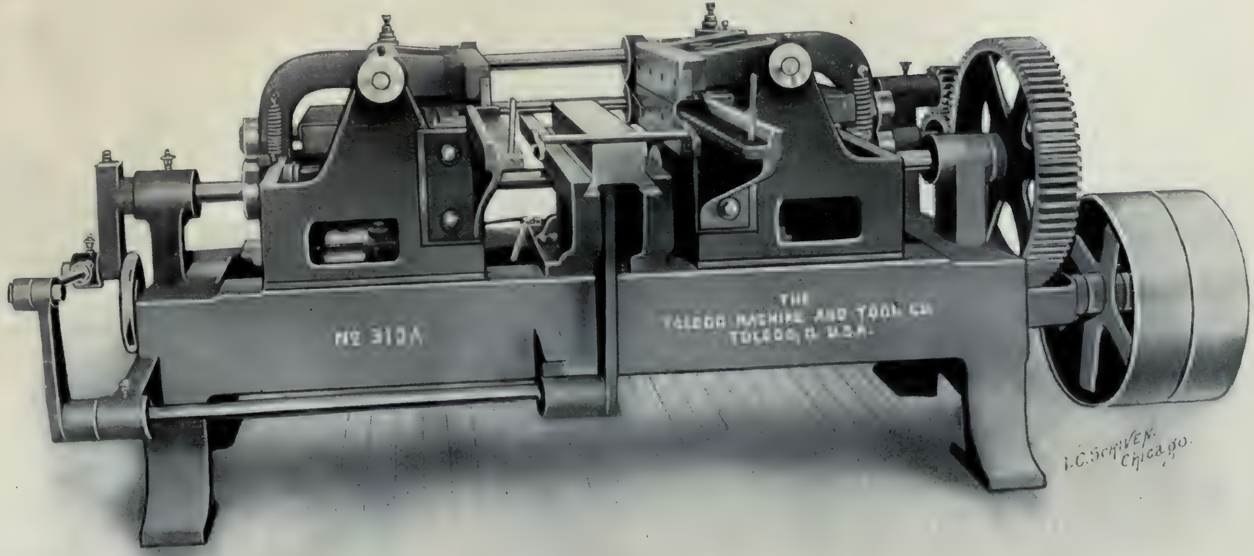
The "Toledo" No. 312 Automatic Edging Machine



THIS machine is constructed for folding or forming the two parallel edges on the metal facings for washboards, box partitions for steel packing and bottle cases, stove pipe and similar work. Built in a number of sizes to accommodate various classes of work. It can be fitted with forming tools or edges to perform one or more operations, in the special shapes or forms desired, at each stroke of machine. Total weight about 2,000 lbs.

Dimensions, page 398. Code Word............

The "Toledo" No. 313-A Automatic Edging Machine

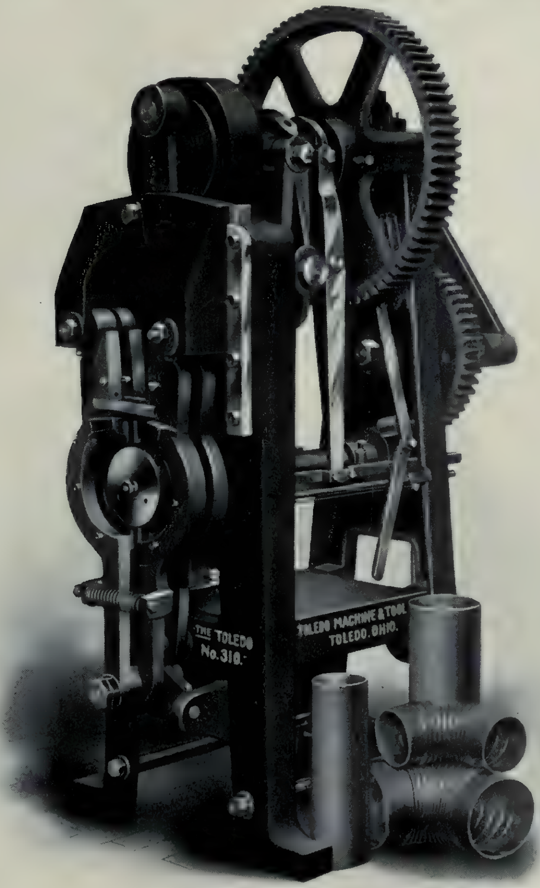

No 313A
THE
TOLEDO MACHINE AND TOOL CO.
TOLEDO, O. U.S.A.

THIS is our largest size Automatic Edger, with maximum capacity for taking sheets 32 inches wide and for folding or forming edges on seams 30 inches long. It has capacity for metal as heavy as 24-gauge, and is specially suited for forming and folding edges for stove pipe, heavy metal cases, boxes and similar articles. Operators are actually handling 2,000 to 2,400 sheets per hour through these machines. Total weight about 5,600 lbs.

Dimensions, page 398.

Code Word...........

The "Toledo" No. 310 Elbow Machine



THIS machine is designed for making plain lap or lock-seamed corrugated elbows, the corrugations dying out on the outer surface of elbow. The elbow is first prepared in the form of plain, straight pipe, with the loose lap riveted or lock-seamed as desired.

The pipe is placed over the horn or mandrel and locked in position with a small hand clamp; by pressing the hand lever the machine is started, automatically clamping the pipe, gathering the metal and forming the corrugations at each stroke, the pipe being automatically fed forward the required distance until the desired number of corrugations have been formed, when machine automatically stops, the clamp is released and the elbow removed from the end of horn or anvil.

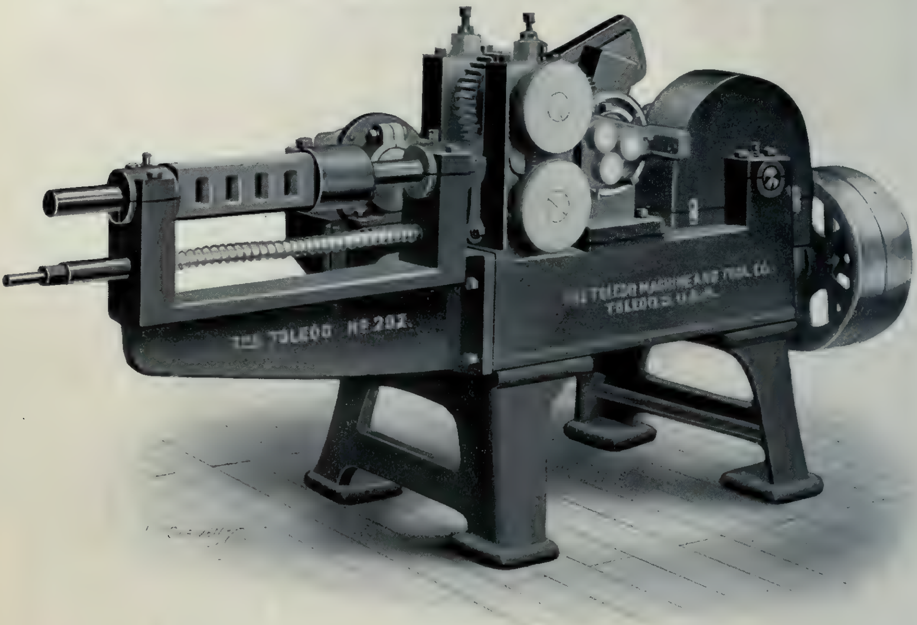
Machine has capacity for about 250 elbows per hour and is designed to accommodate tools for forming elbows from 4 to 7 inches inclusive. Weight complete, with tools for one size of elbow, 2,400 lbs.

Code Word, without Tools..............

Code Word for 5-inch Tools.......... Code Word for 7-inch Tools..........

Code Word for 6-inch Tools.......... Code Word for 8-inch Tools..........

The "Toledo" No. 292 Automatic Wire Ring Machine


THE TOLEDO No 292
THE TOLEDO MACHINE AND TOOL CO.
TOLEDO O. U.S.A.

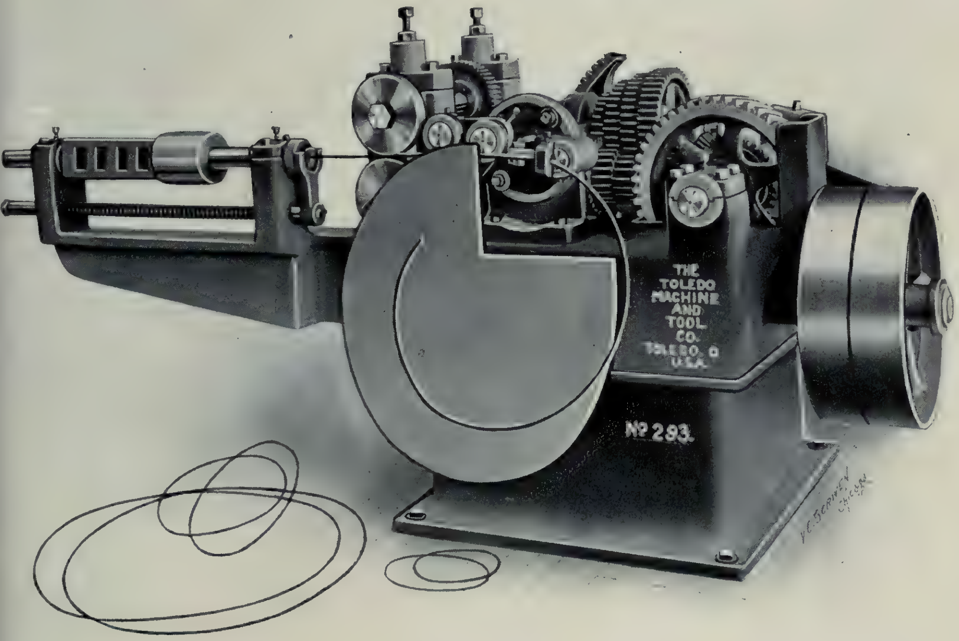
THIS machine is a practical duplicate, in a smaller size, of No. 293, and will handle wire up to and including ¼-inch diameter, and is specially suited for cutting and forming rings and bail wires for medium and smaller sizes of wash tubs, pails and similar work. The machine is adjustable for feeding and forming wire of any length and thickness within its rated capacity, into complete rings or segments thereof.

Capacity for forming wire rings from 4 inches to 26 inches in diameter. Each machine is furnished with one set of rolls and straightening arbor, with dies capable of handling two or three sizes of wire only. Additional dies and rolls will be furnished to suit any size of wire within capacity of machine, at a small additional cost.

Each machine is complete with countershaft.

Number of Machine	292	293
Old Number	....	....
Page of Catalogue	402	403
Code Word		
Price including reel and countershaft	$.....	$.....
Weight, about . . . pounds	3100	5500
Will work wire, in diameter . . . inches	1/16 to ¼	⅛ to ⅜
Will cut off straight lengths, up to . . . inches	84	84
Will form rings in diameter . . . inches	4 to 26	8 to 26
Size of pulleys on countershaft . . . inches	12 to 5	24 to 6
Speed of pulleys on countershaft . . . R. P. M.	360	360
Average travel of wire feed per minute . . . feet	150	150
Floor space over all, F. to B., R. to L. . . . inches	42 x 92	48 x 100

The "Toledo" No. 293 Automatic Wire Ring Machine



NUMBER 293 will automatically feed from the coil, straighten, form and cut off rings up to and including 26 inches in diameter of wire up to and including ⅜-inch in diameter.

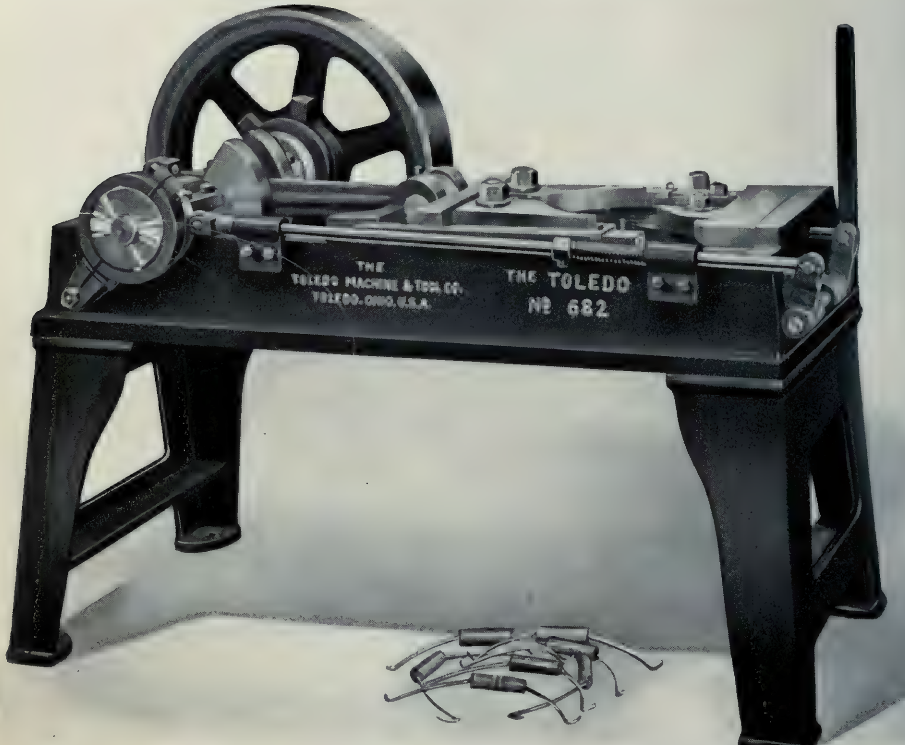
It will complete a ring or segment at each revolution or stroke and produce a greater number, in a given length of time, than any other machine on the market.

The pattern is new, heavy and powerful enough to successfully work continuously to the limit of its capacity without undue strain on any part of the machine. Total weight about 5,500 lbs.

Dimensions, page 402.

Code Word...........

The "Toledo" No. 682 Bail Forming Machine



THIS machine is built in two sizes; it is adapted and used for taking straight bail wires after being cut to length and inserted in wood handle and, in one operation, forming the offset shoulder on each side of wood handle, also forming the hook on both sides of the bail.

No. 682 has capacity for wire up to and including No. 9 gauge.

No. 683 has capacity for wire up to and including No. 6 gauge.

The changes from one size bail to another can be easily and quickly made on either machine.

Number of Machine	682	683
Page of Catalogue	....	....
Code Word	....	....
Price with dies	$.....	$.....
Price including one set of forming dies	$.....	$.....
Price per extra set of forming dies	$.....	$.....
Weight pounds	2000	2200
Diameter and face of flywheel inches	28 x 4	32 x 5½
Weight of flywheel pounds	350	550
Strokes per minute	80	80
Will work wire B. W. G.	9	6
Floor space of legs, F. to B., R. to L.	33 x 62	33 x 63
Floor space over all, F. to B., R. to L.	38 x 66	43 x 68

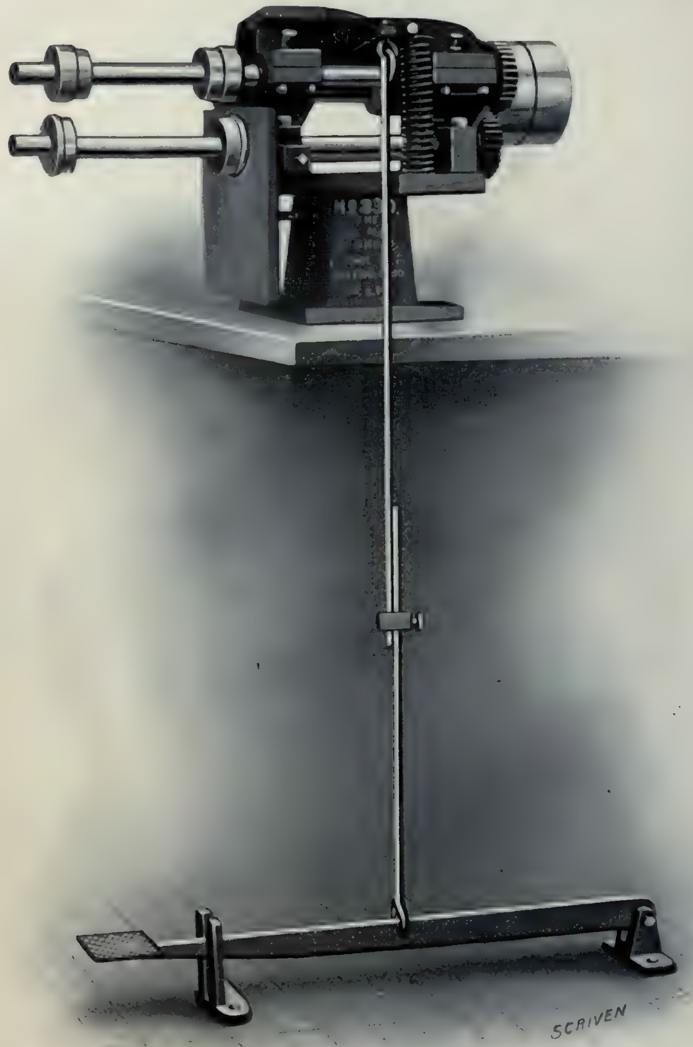
The "Toledo" Trimming, Beading and Flanging Machines

THESE machines are built in two styles, with either parallel or pivoted shafts. They are furnished with either stationary or inclinable aprons. The parallel shaft machines are also built with automatic attachment for trimming and beading blacking boxes, threading screw caps, and other work of this character. For cut of automatic machine, see pages 407 and 409.

Machines Nos. 330, 335, 331 and 332 are furnished without legs, unless specified.

		Parallel Shaft Machines					Pivoted Shaft Machine				
Number of Machine	330	335	336	337	338	339	331	332	333	334	334-A
Old Number	....	....	....	....	....	....	1	2	3	4	....
Page of Catalogue	406	408	....	....	....	413	410	....	411	....	412
Price of Machine with apron	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	
Code Word	....	$.....	....	....	....	....	....	....	....	....	
Price for crimping rolls per pair	$.....	....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	
Code Word	....	$.....	....	....	....	....	....	....	....	....	
Price for flanging rolls per pair	$.....	....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	
Code Word	....	$.....	....	....	....	....	....	....	....	....	
Price for beading rolls per pair	$.....	....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	
Code Word	....	$.....	....	....	....	....	....	....	....	....	
Price for adjustable apron and guide rolls	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	
Code Word	....	....	....	....	....	....	....	....	....	....	....
Weight complete, about......pounds	150	350	1300	2000	5000	7200	150	350	1300	2000	3200
Will bead and flange metal...B. W. G.	No. 26	No. 24	No. 18	No. 16	14	12	No. 26	No. 24	No. 18	No. 16	16
Diameter of shafts............inches	1 3/16	1 5/8	2 3/8	2 7/8	3 1/4	4	1 3/16	1 5/8	2 3/8	2 7/8	3 1/2
Distance between shafts (smallest) inches	3	3	4	5	6	7	3	3 1/2	4	6	7 1/2
Will handle work in length up to.... inches	12	16	24	30	35	40	12	18	24	30	40
Size of driving pulleys.........inches	8 x 2	12 x 3	16 x 3	18 x 3	20 x 4	24 x 5	6 x 2	12 x 3	16 x 3	18 x 3	18 x 3
Speed of driving pulleys.....R. P. M.	200	200	250	250	350	400	200	200	250	250	250
Proportion of gearing...............	....	....	3:1	5:1	6:1	7 1/2:1	....	....	3:1	5:1	6:1
Floor space over all, F. to B., R. to L. ....inches	10 x 24	18 x 48	30 x 70	40 x 85	50x100	70x120	12 x 28	14 x 42	20 x 50	24 x 60	26 x 70

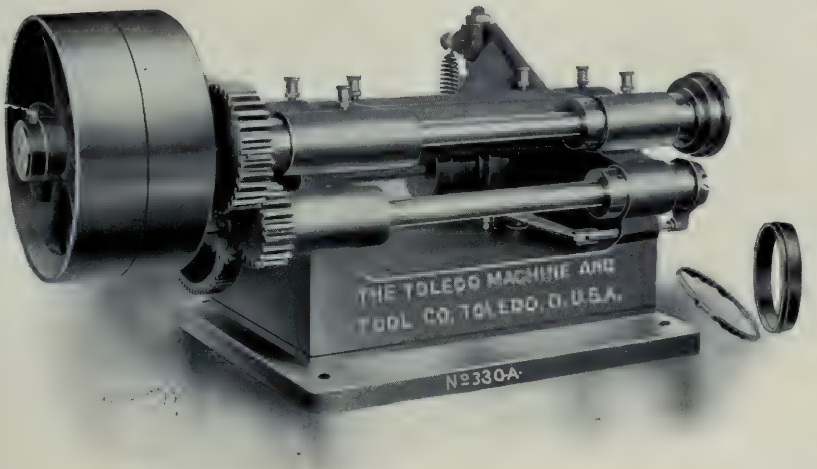
The "Toledo" No. 330 Parallel Shaft Beading and Flanging Machine



THIS Machine is designed for beading and crimping baking powder boxes and similar work; also straight and flaring pails, paint and lard pails of the medium and smaller sizes. Furnished complete with adjustable apron and with rolls as specified when ordered. Total weight about 150 lbs.

General description, page 405. Dimensions, page 405. Code Word...........

The "Toledo" No. 330-A, Parallel Shaft Automatic Trimming Machine

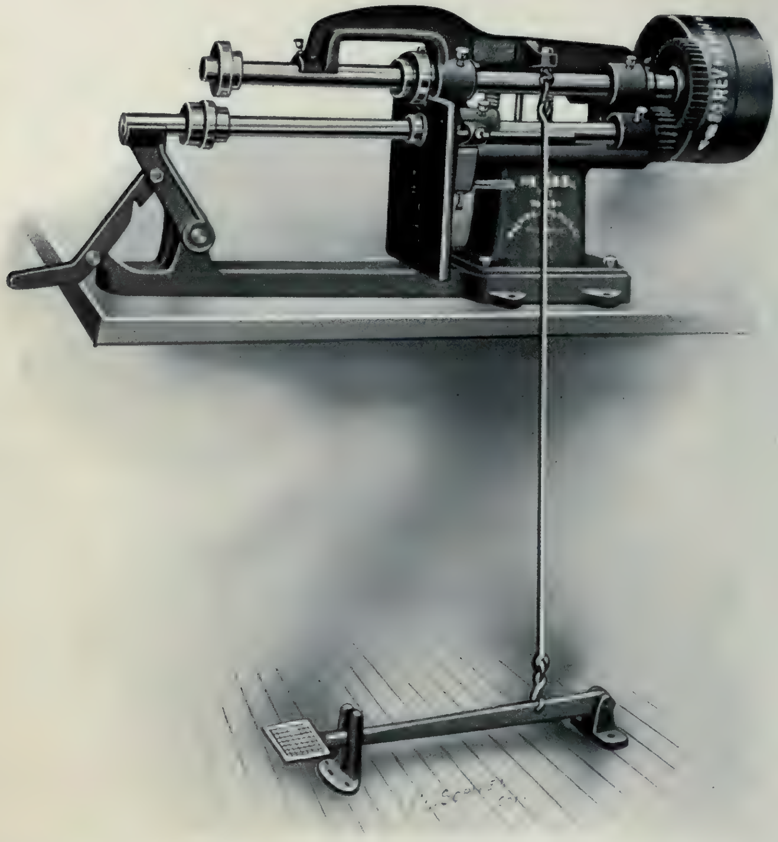


THIS illustration shows our Automatic Trimmer, designed for trimming blacking boxes, jar caps and similar work. The cutters rise and descend automatically. The machine is fitted with an automatic ejector for ejecting the work. Operators have been able to trim 23,000 blacking boxes in ten hours on one of these machines.

Code Word............

Number of Machine	330-A
Price	$.....
Weight, about ... pounds	....
Will trim metal ... B. W. G.	28
Will trim metal, diameter minimum ... inches	1½
Will trim metal, diameter maximum ... inches	3½
Driving pulleys ... inches	8 x 2
Floor space over all, F. to B., R. to L. ... inches	14 x 28

The "Toledo" No. 335 Parallel Shaft Beading and Flanging Machine



WITH our New Pattern Beading and Flanging Machine, with parallel movement of the upper shaft, it is possible to successfully flange simultaneously, both ends of oval or cylindrical bodies at one operation. The rolls and apron being adjustable, bodies from 4 inches to 16 inches may be flanged. The guide rolls determine the proper position for the article with reference to its diameter.

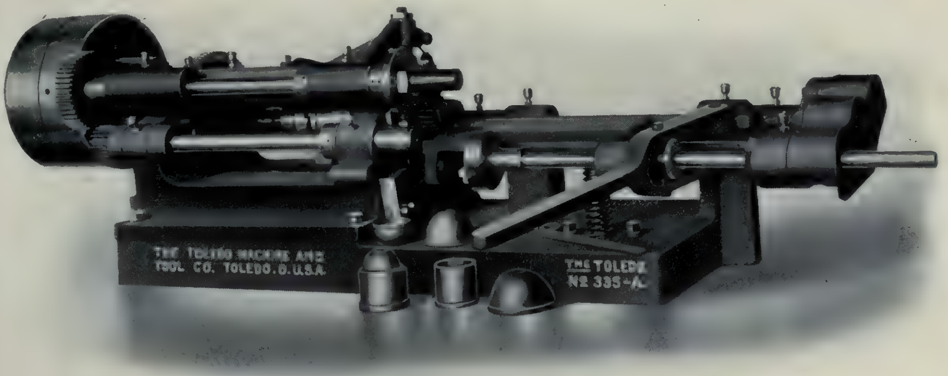
The rolls are brought together by means of foot treadle, and thrown apart by means of strong spiral springs when the foot treadle is released.

Flanging rolls can be easily and quickly removed and beading and crimping rolls placed in position, when beading and crimping can be successfully done in a similar manner to the flanging.

An outboard bearing is provided to support lower shaft, and by means of the hand lever shown, this bearing may be raised into position or lowered so that the work can be easily slipped on or off the shaft. The upper journal is removable so that inner rolls may be slipped from the shaft without removing the shaft. Total weight about 350 lbs.

General description, page 405. Dimensions, page 405. Code Word...........

The "Toledo" No. 335-A, Parallel Shaft Automatic Trimming Machine



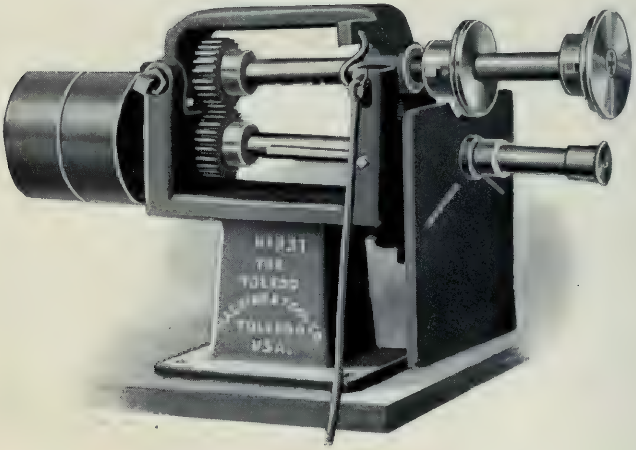
THIS Trimmer is fitted with a special attachment for truing up the various sizes and shapes of stamped steel oil can bodies and breasts. It is also adapted to a wide range of similar work.

Code Word...........

Number of Machine	335-A	336-A	338-A
Weight about .... pounds	900	1400	....
Will trim metal........................ B. W. G.	24	16	....
Will trim metal, minimum diameter...... inches	2	4	....
Will trim metal, maximum diameter...... inches	6	8	....
Driving pulleys .... inches	12 x 3	14 x 3	12 x 3
Floor space over all, F. to B., R. to L....... inches	30 x 65	38 x 104	23 x 38

The "TOLEDO" No. 331 Pivoted Shaft Beading and Flanging Machine

(Old No. 1)



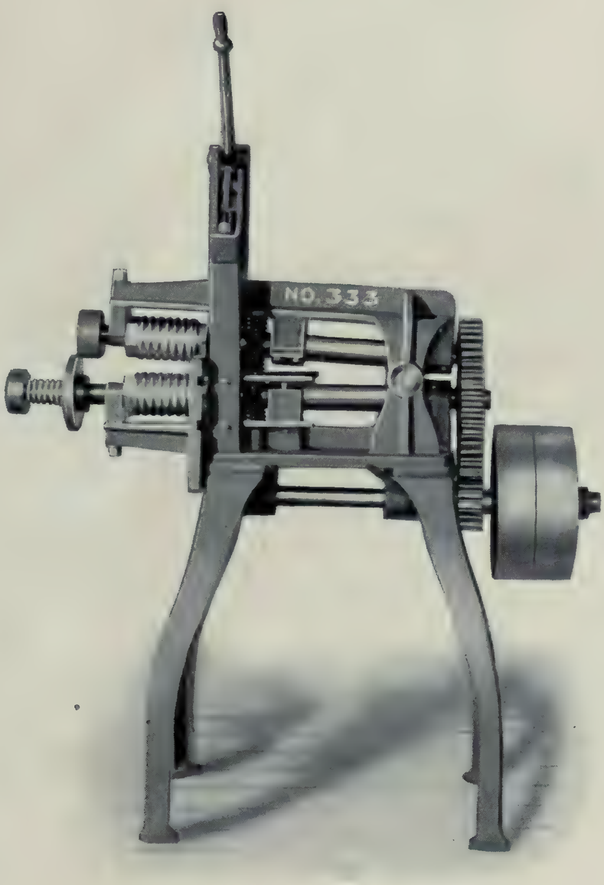
THIS Machine is adapted to a wide range of single or double flanging, beading, swaging, etc., as well as to crimping on taper, flaring and straight work, such as all kinds of cans and cylindrical work, lard pails, measures, dipper bowls, coffee pots, etc.

Machine is furnished with an adjustable apron, which gives a firm support to bottom of tapering articles while being beaded or flanged. It is also furnished with adjustable guide rollers in apron, which determine proper position for the work with reference to its diameter.

Built in various sizes, and equipped with beading, flanging or crimping rolls, as ordered. Total weight about 150 lbs.

General description, page 405. Dimensions, page 405
Code Word for Rolls, complete as shown............

The "Toledo" No. 333 Pivoted Shaft Beading and Flanging Machine

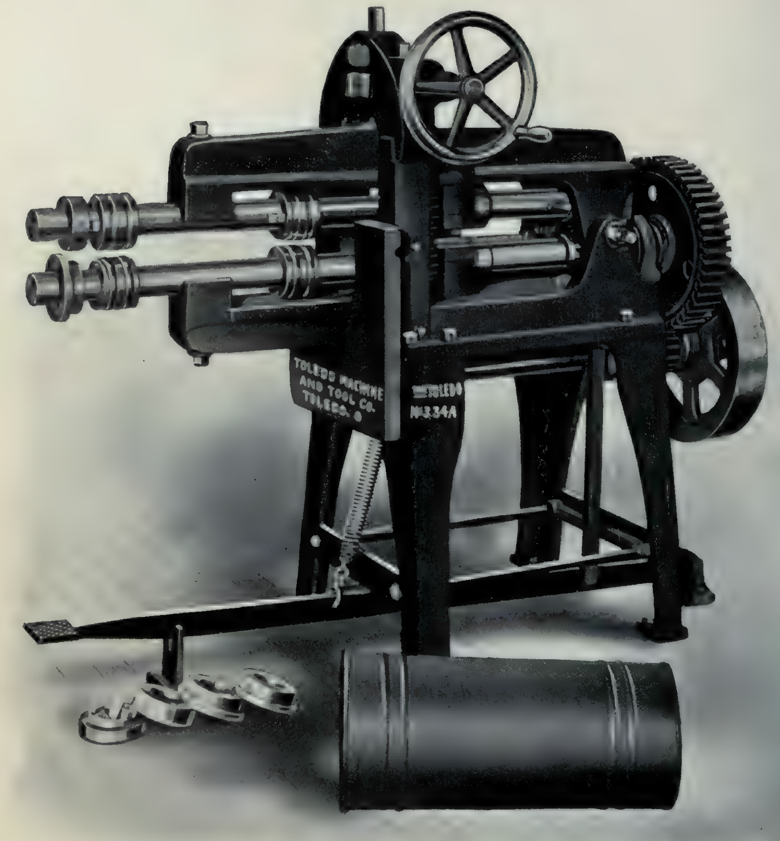


BEADING and Flanging Machine No. 333 is designed for beading and flanging stove bodies, powder kegs, oil cans, ash and garbage cans, etc.; also used for crimping and embossing.

Provided with T. and L. Pulleys. The rolls are brought together by means of hand lever and toggle joint. The steel shafts are 2⅜ inches in diameter. Total weight about 1,300 lbs.

General description, page 405. Dimensions, page 405
Code Word with Apron only............

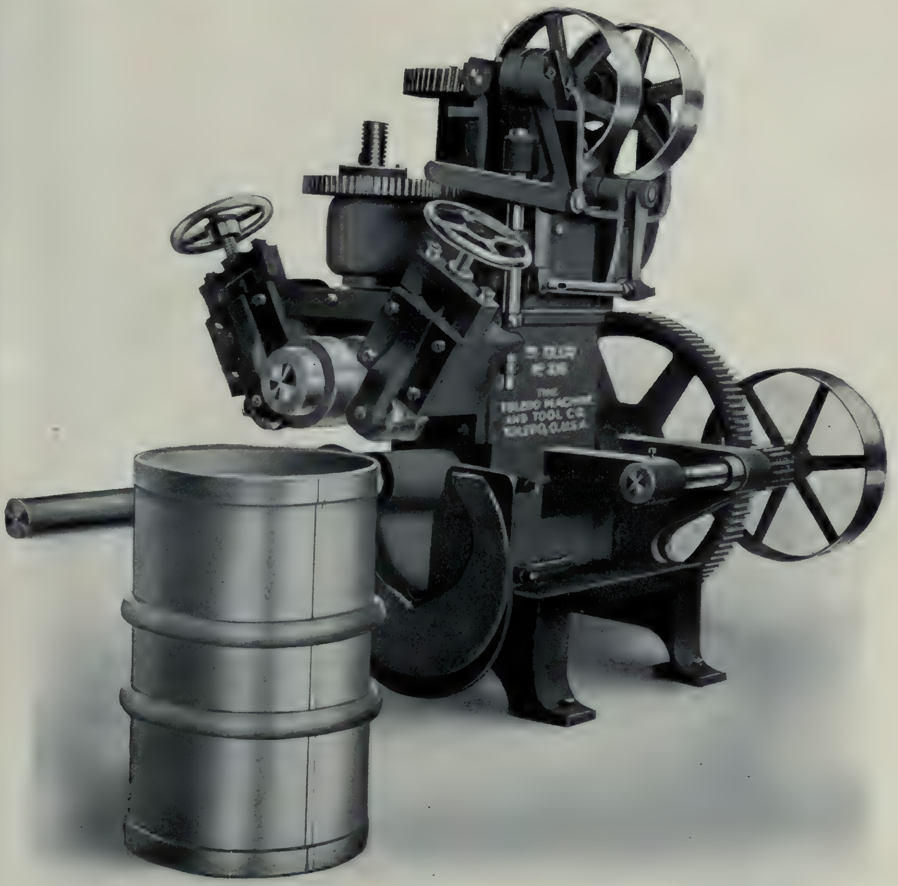
The "Toledo" No. 334-A Beading and Flanging Machine



NUMBER 334-A Swaging Machine is of a very powerful type, designed for swaging or rolling beads and flanges on cylinders as heavy as 16-gauge, used in the manufacture of round heating and air tight stoves, steel barrels and other heavy receptacles. The worm gear and screw feed, operated by hand wheel, give the easy, powerful means for engaging and releasing the rolls. Total weight about 3,200 lbs.

General description, page 405. Dimensions, page 405. Code Word...........

The "Toledo" No. 339 Beading or Swaging Machine



THIS Machine is designed for swaging or forming beads or corrugations in cylinders for steel barrels or similar work, and for forming the flanged or shouldered ends on same for receiving bottoms and tops.

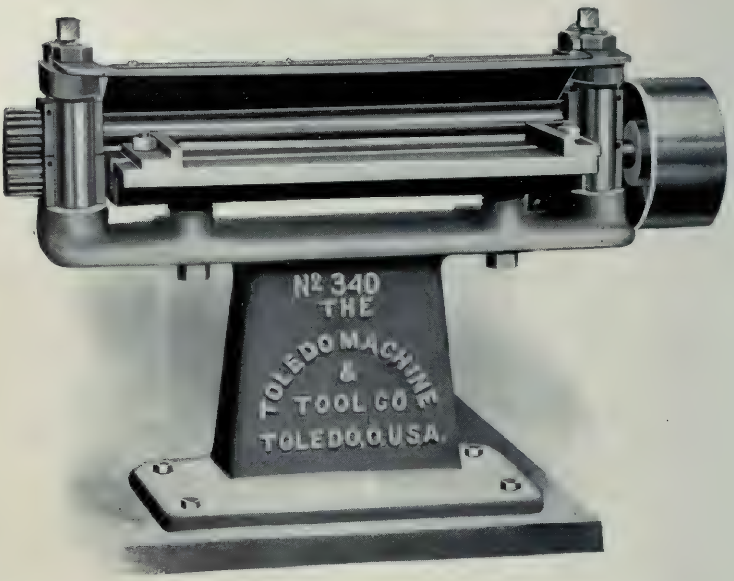
The upper rolls and head are operated by an automatic elevating attachment which carries or forces the upper roll down on the work and which is automatically reversed after the swaging or rolling operation is completed; the rod is then carried upward and automatically stopped. A bead is swaged or rolled, as illustrated, in two minutes, and the results are remarkably successful.

Machine has capacity for working metal as heavy as No. 12 gauge. Similar machines for the heavier and lighter gauges of metal can be furnished. Total weight about 7,200 lbs.

General description, page 405. Dimensions, page 405. Code Word..........

The "Toledo" No. 340, Two Roll Body Formers With Rubber Incased Rolls

(Old No. 309)



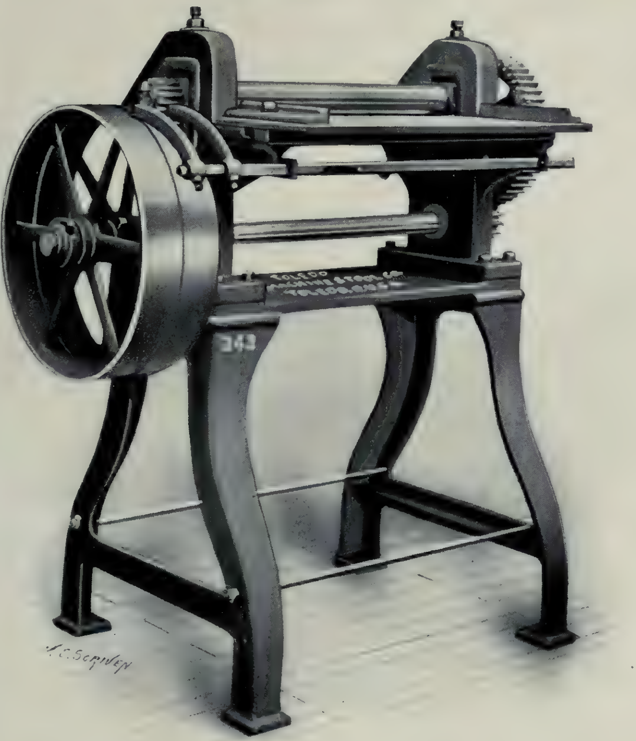
THESE 10-inch Body-Forming Rolls will form can bodies and other cylinders from 1½ inches diameter, 2 inches long, to 24 inches diameter, 10 inches long.

Where blanks have folded or formed edges for lock seamed work, these rolls are furnished with *Rubber Casing,* as shown above, to prevent crushing the formed or folded edge.

Used for forming bodies or cylinders for baking powder cans, fruit cans, pails, powder kegs, stove pipe, and other articles made of the lighter gauges of metal.

Number of Machine	340	341	342
Old Number	....	....	....
Price with plain rolls	$.....	$.....	$.....
Code Word	....	....	....
Price with rubber-covered rolls	$.....	$.....	$.....
Code Word	....	....	....
Weight, about .... pounds	75	125	170
Width between gauges .... inches	10	14	18
Size of driving pulley .... inches	4 x 2	6 x 2½	8 x 2½
Speed of driving pulley .... R. P. M.	200	150	100

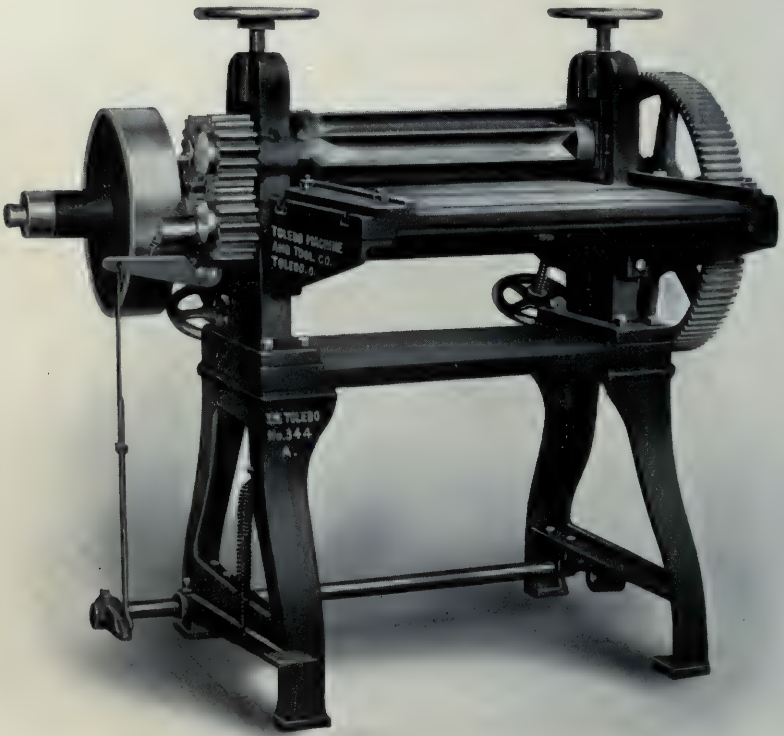
The "Toledo" No. 343, Adjustable Body Former
Three-Roll Type



THE "Toledo" Body Formers, as shown in the illustrations on this and the following pages, are designed for forming cylinders or bodies of the heavier gauges of metal, as well as the lighter gauges intended for stove pipe, stove bodies, ash, garbage and waste cans, steel oil barrels, gasoline tanks and similar work. The rolls are made of hammered, high-carbon open hearth steel, which gives a hard, tough roll capable of giving the best service possible. The gearing is machine cut from the solid. Each machine is fitted with an easy, quick adjustment to roll for varying the size of cylinders, also adjustable gauges, tight and loose pulleys and belt shifter.

Number of Machine	343	344	344A	345	346	347	348
Old Number	....	....	....	....	....	....	....
Page of Catalogue	415	....	416	....	....	417	....
Code Word							
Price	$....	$....	$....	$....	$....	$....	$....
Length of rolls ....inches	24	26	30	36	42	48	60
Diameter of rolls....inches	2½	2½	6	3	3	3½	
Weight about ....pounds	900	1000	1500	1700	2100	2000	5000
Will form B. W. G....inches	18	18	18	16	16	14	10
Size of pulleys ....inches	18x3	18x3	18x4	20x4	20x4	24x4	24x5
Speed of pulleys....R. P. M.	220	220	220	250	250	250	225
Floor space over all, F. to B., R. to L....inches	24x52	24x58	50x58	28x64	28x70	28x74	36x80

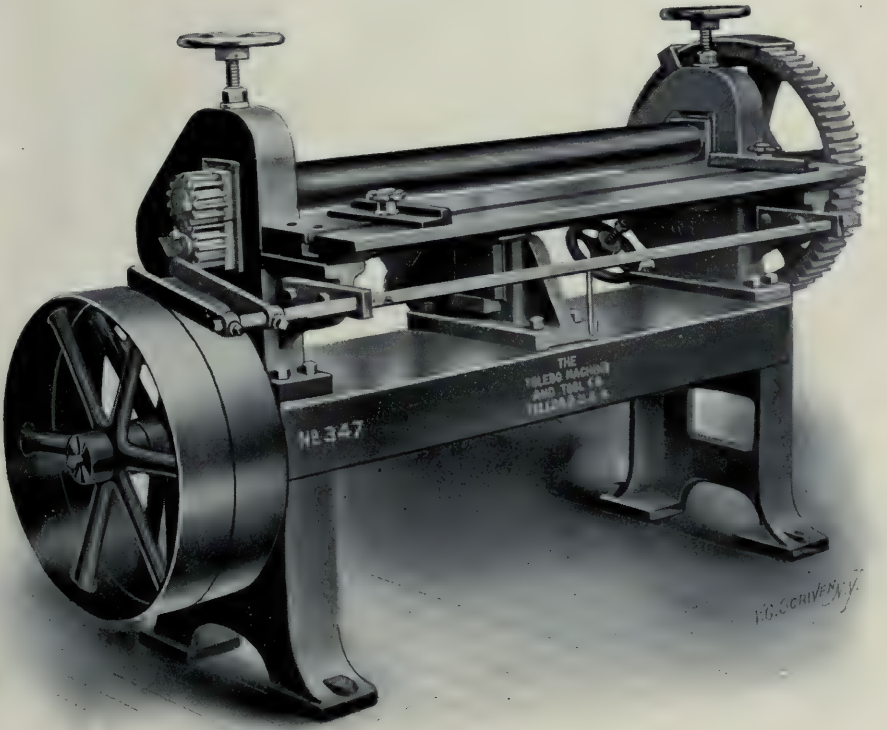
The "Toledo" No. 344-A Body Former



THIS illustration shows our No. 344-A Forming Rolls, fitted with friction clutch, and with device for automatically stopping the machine after the required number of revolutions necessary for forming the special corrugated bodies or shapes for ash and garbage cans and similar work have been made. Total weight about 1,500 lbs.

General description, page 415. Dimensions, page 415. Code Word...........

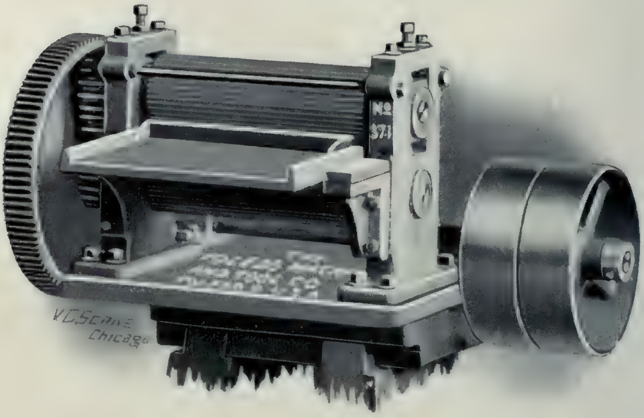
The "Toledo" No. 347 Body Former



OUR 48-inch Body Former has capacity for forming cylinders or bodies of large or small diameters of metal as heavy as 14-gauge, up to and including 48 inches wide. Built in 6 sizes. Total weight about 2,000 lbs.

General description, page 415. Dimensions, page 415. Code Word...........

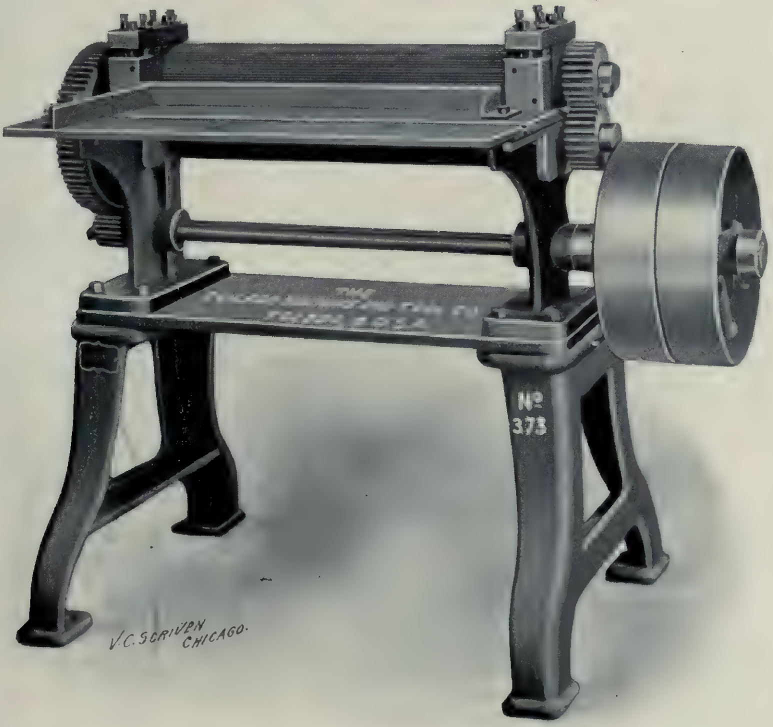
The "Toledo" No. 371 Corrugating Rolls



THIS Machine, as well as the other sizes illustrated on the following pages, is suited for corrugating and forming the various shapes required in the manufacture of zinc and tin facings and linings for wash boards, stove ovens, refrigerators, and other light gauge articles. These rolls are made of high carbon hammered steel, with corrugations milled or accurately machined. The gearing, connecting the rolls is machine cut from the solid. Each machine is fitted with positive safety guard to prevent injury to the operator. Furnished with or without iron standards or tables.

Number of Machine	371	372	373	374
Old Number	14	....	28	36
Page of Catalogue	418	....	419	420
Code Word				
Price without standards	$.....	$.....	$.....	$.....
Code Word	....	....	....	....
Price with standards	$.....	$.....	$.....	$.....
Code Word	....	....	....	....
Weight, about . . . pounds	500	825	1000	1300
Diameter of rolls, as ordered . . . inches	3 to 4	4 to 5	4 to 5	4 to 6
Length of rolls . . . inches	18	24	30	36
Diam. and face of driving pulleys . . inches	12 x 3	14 x 3	16 x 3	18 x 4
Speed of driving pulleys . . . R. P. M.	250	250	250	250
Proportion of gearing	1 to 5	1 to 5	1 to 5	1 to 5
Floor space of base, F. to B., R. to L. inches	20 round	26 x 34	26 x 40	26 x 48
Floor space over all, F. to B., R. to L. inches	....	27 x 47	27 x 53	28 x 62

The "Toledo" No. 373 Corrugating Rolls

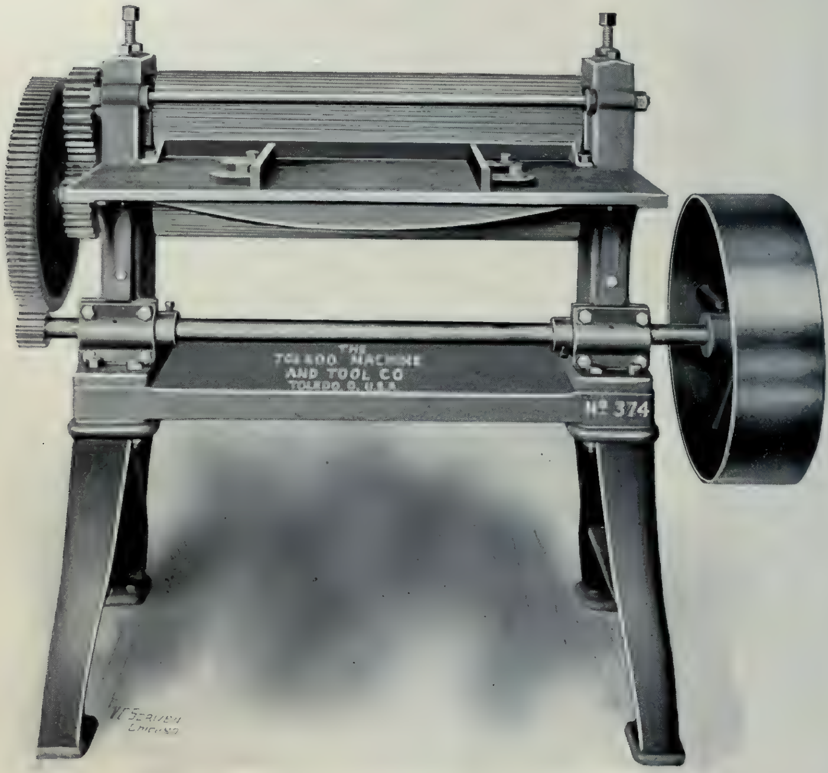


THESE Rolls are exceedingly efficient and up to the highest standard. The corrugations are milled in the rolls and the gears are machine cut. Adjustable side gauges are provided on the table shown. Adapted to corrugating large sheets of thin metal, such as zinc for wash boards, tin and steel linings for ovens and a similar line of work. Total weight about 1,000 lbs.

Dimensions, page 418.

Code Word...........

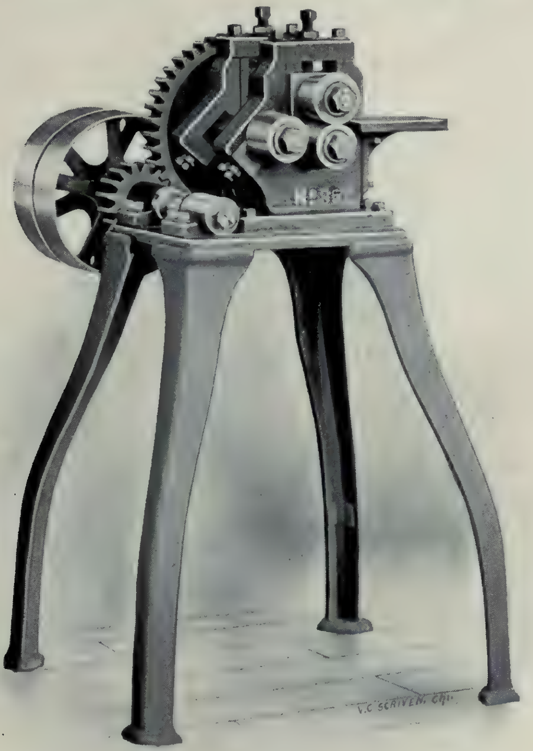
The "Toledo" No. 374 Corrugating Rolls



THESE Corrugating Rolls are built extra heavy, with large steel rolls for crimping or corrugating the larger sheets of heavier gauges of metal, and for work similar to that specified for rolls on preceding pages. Total weight about 1,300 lbs.

Dimensions, page 418. Code Word...........

The "Toledo" No. 352 Band Rolling Machine

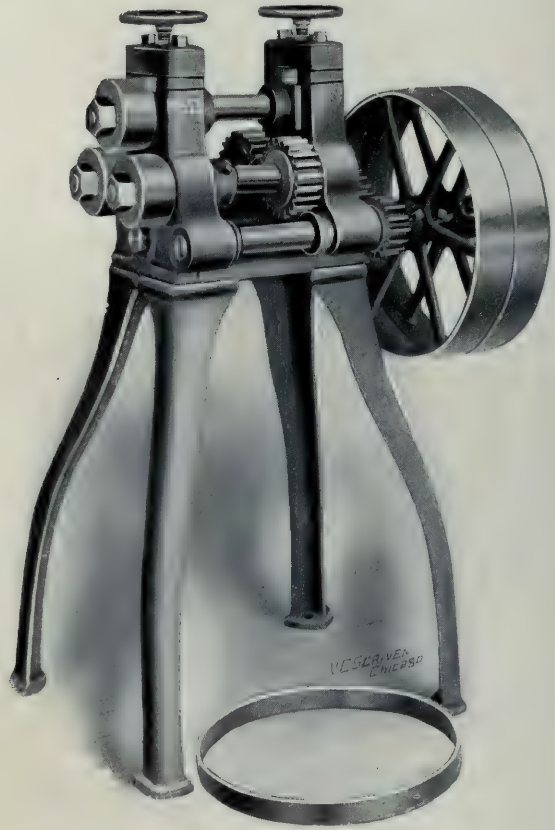


THESE Machines are fitted for rolling plain flat bands or hoops, as well as tapering work, from straight bars previously cut to length, such as tires for wheelbarrows and wagons, bands or hoops for milk cans, steel barrels, tanks, etc. Rolls are made of hardened tool steel. Other than being smaller in size, Machine illustrated above is similar to one described on following page.

Number of Machine	351	352	353	353-A	354	355
Old Number	....	....	2	....	....	....
Page of Catalogue	....	421	422	....	423	....
Code Word						
Price	$....	$....	$....	$....	$....	$....
Will bend in width and thickness ... inches	1 x ⅛	2 x ¼	3 x ½	3x½	4 x ¾	5 x 1
Diameter smallest tire that can be rolled ... inches	6	8	12	12	18	24
Weight complete, about ... pounds	400	500	800	800	2400	5000
Diam. and face of belt pulleys, inches	12 x 3	12 x 3	16 x 4	16x4	20 x 4	24 x 5
Speed of belt pulleys ... R. P. M.	150	150	150	150	300	300
Floor space over all, F. to B., R. to L. ... inches	24x18	30x20	36x24	36x26	50x36	60x36

The "Toledo" No. 353 Band Rolling Machine

(Old No. 2)



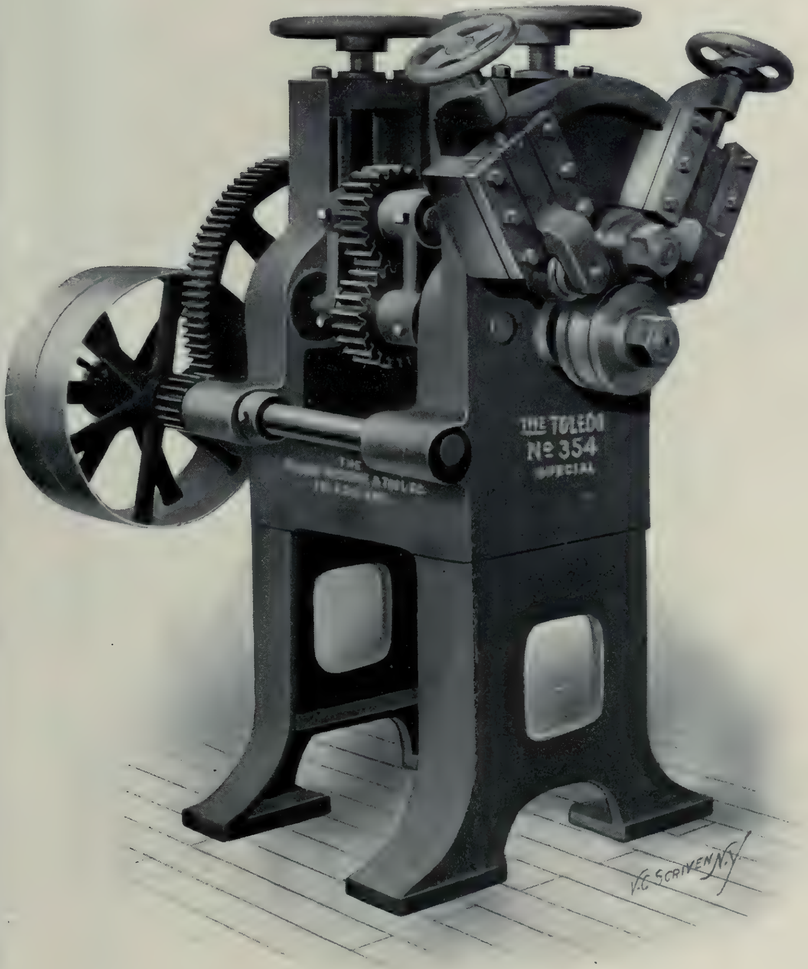
THIS illustration shows one of the smallest sizes of our Geared Rolls, for rolling bars or strips into cylindrical shape for tires for wheelbarrows, agricultural implements and a similar line of work.

Rolls are made of hardened tool steel. Top roll is provided with an adjustment, making it possible to roll either large or small circles. Construction is such that the tires, after they are welded, may be again passed through the machine and rolled true. This makes an inexpensive and simple way of truing or straightening tires. Machine is capable of handling bars up to and including 3 inches in width and not exceeding ½-inch in thickness.

· The larger sizes of these Rolls will roll material 1 x 5 inches. Total weight about 800 lbs.

Dimensions, page 421. Code Word...........

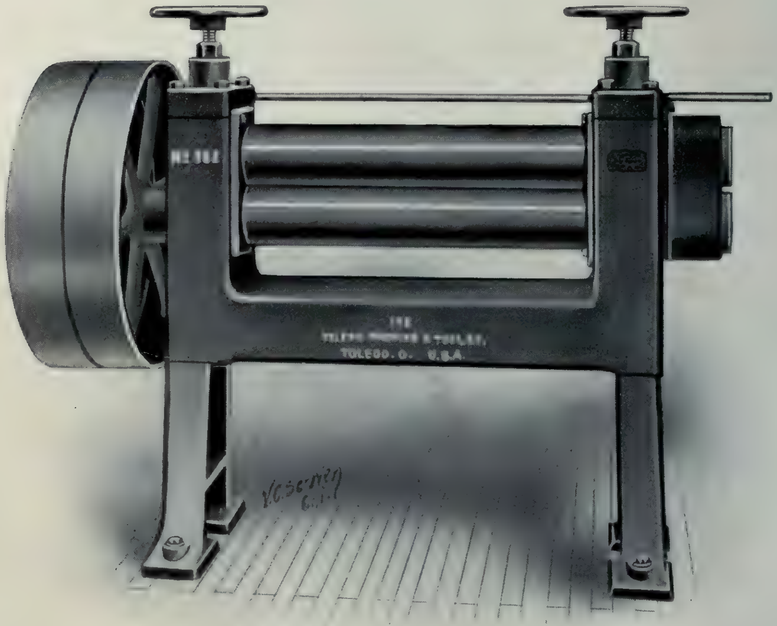
The "Toledo" No. 354 Band Rolling Machine



THIS machine is of a heavy, powerful, geared construction, designed specially for bending various shapes for tires, turbine rims, angle and T-iron and similar work; built in a variety of sizes. Total weight about 2,400 lbs.

Dimensions, page 421. Code Word...........

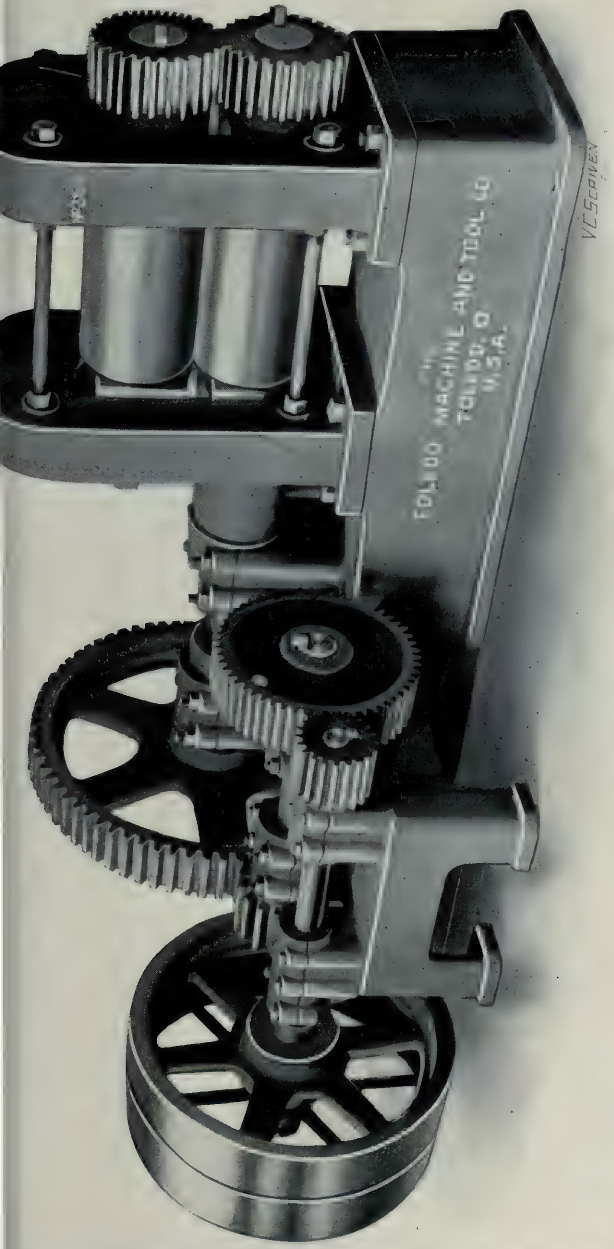
The "Toledo" No. 362 Smoothing Rolls



THIS illustration shows the general design and construction of our Smoothing Rolls. The rolls are made of tool steel, hardened and ground very smooth. These machines are specially suited for rolling and flattening the burrs on armature discs, rheostats and other electrical parts, as well as on steel furniture, steel refrigerators, etc.

Number of Machine	360	361	362
Page of Catalogue	....	....	424
Code Word			
Price	$.....	$.....	$.....
Weight, about ... pounds	1100	1800	2400
Diameter of rolls ... inches	5	5½	6
Length of rolls ... inches	12	24	32
Diameter and face of driving pulleys ... inches	24 x 4	28 x 4	30 x 5
Speed of driving pulleys ... R. P. M.	120	115	100
Floor space of base, F. to B., R. to L. ... inches	24 x 24	24 x 39	24 x 47
Floor space over all, F. to B., R. to L. ... inches	24 x 40	28 x 60	30 x 68

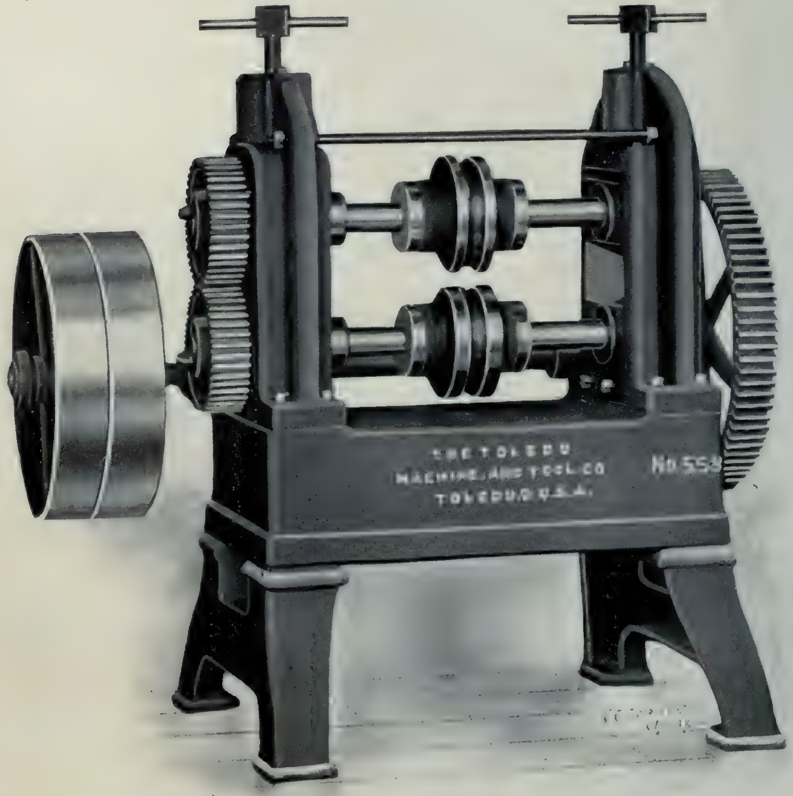
The "Toledo" No. 365 Gap Rolling Mill



Number of Machine	363	364	365	366
Old Number	3	4	5	6
Page of Catalogue	....	....	425	....
Code Word				
Price	$.....	$.....	$.....	$.....
Weight, about ... pounds	6000	10000	16000	30000
Diameter of rolls ... inches	8	10	13	16
Length of rolls ... inches	12	16	22	30
Size of belt pulleys, diameter and face ... inches	24 x 4	24 x 6	24 x 8	36 x 8
Speed of belt pulleys ... R. P. M.	....	....	350	....
Floor space over all, F. to B., R. to L. ... inches	....	....	100x136	....

THIS machine is designed for rolling out and reducing in thickness the socket of hollow back and welded shovels.

The "Toledo" No. 558 Shovel Strap Finishing Rolls



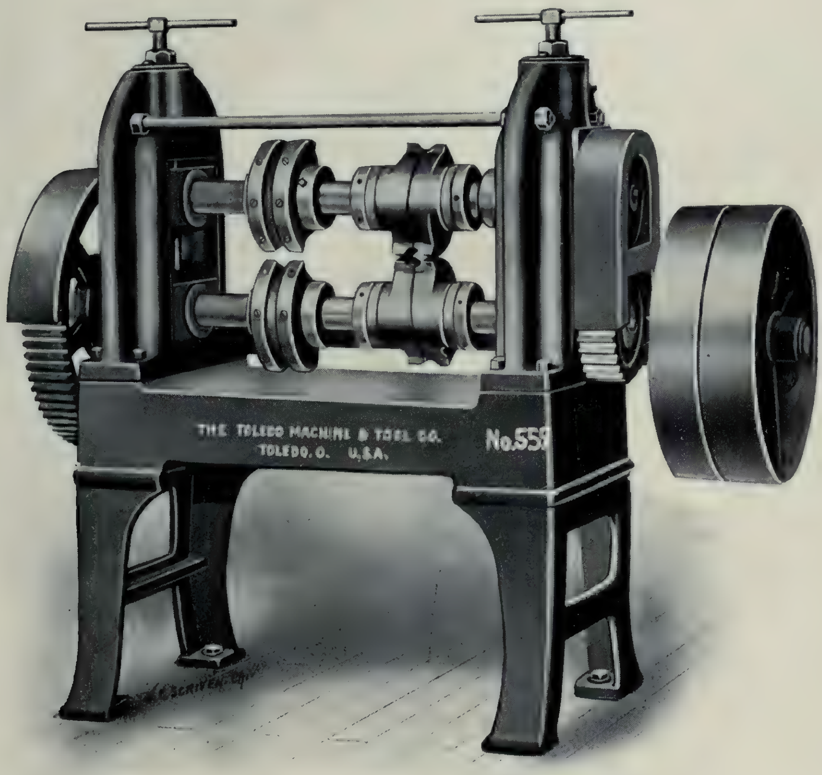
ADAPTED to breaking down and forming straps on shovel handles. Built single or double pairs of rolls, as ordered. When single roll machine is used, two machines are recommended, one for breaking down and forming, the other for finishing.

Rolls are fitted with hardened tool steel forming surfaces. Gearing is machine cut throughout. Total weight about 2,600 lbs.

See description of Double Roll Machine on following page.

Dimensions, page 448. Code Word...........

The "Toledo" No. 559 Shovel Strap Finishing Rolls


THE TOLEDO MACHINE & TOOL CO.
TOLEDO, O. U.S.A.
No.559

MACHINE illustrated is designed for breaking down and forming straps on shovel handles. The first roll breaks down the strap and forms same to shovel handle. The second roll then tightens the strap and neatly rolls or clinches it onto the wood handle.

The finishing rolls are fitted with our *cushion adjustment* for taking up the variation in sizes of handles, thus finishing and producing handles with sockets which are neat and uniform in appearance. Total weight about 2,800 lbs.

Dimensions, page 448. Code Word............

The "Toledo" No. 552 Power Squeezer

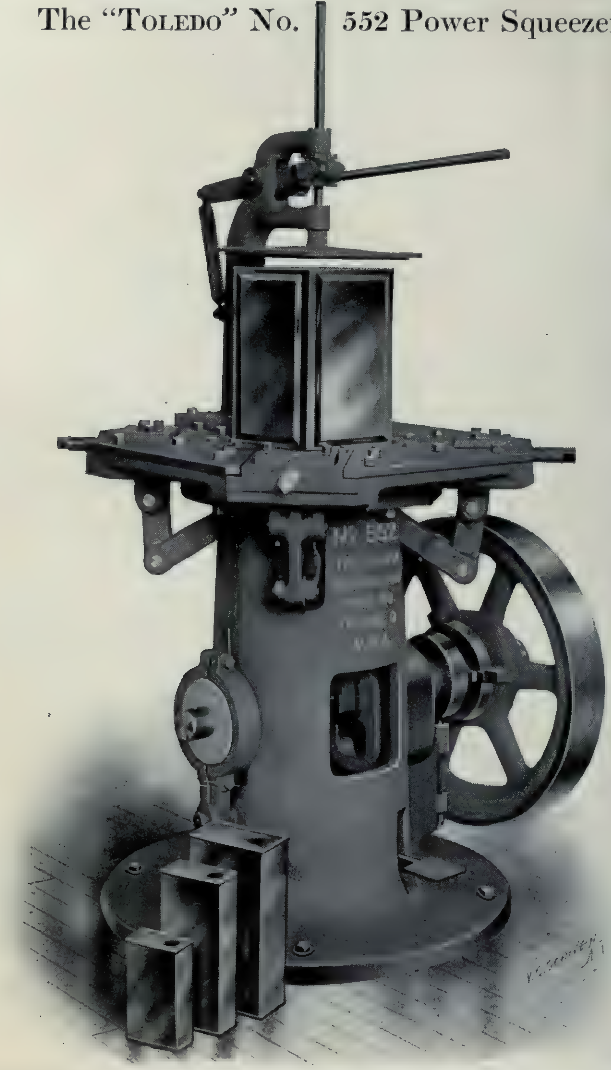
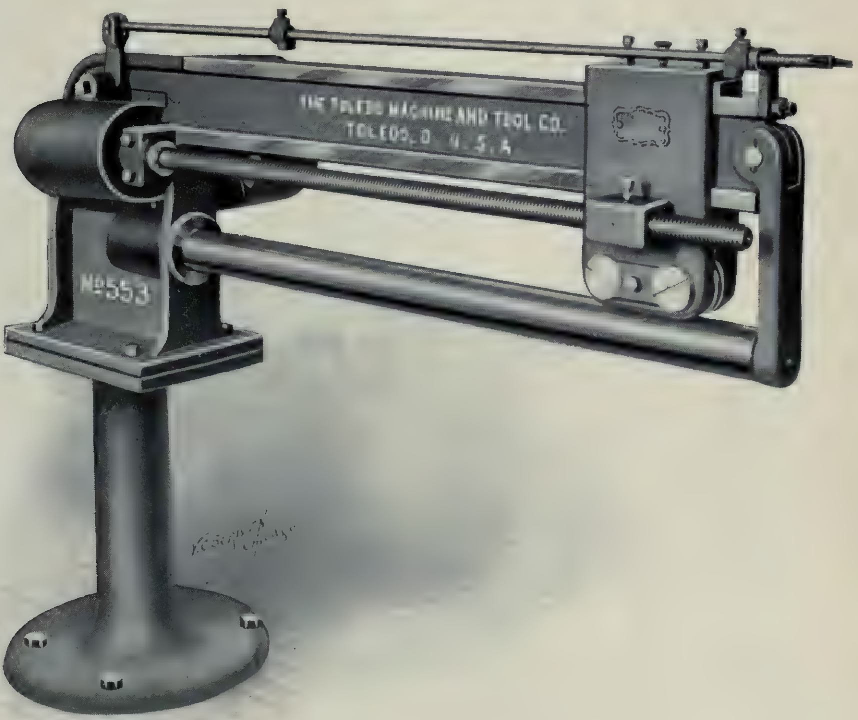


ILLUSTRATION represents our new design of Power Squeezer for crimping tops and bottoms of square, oblong or irregular shaped cans on can bodies and is adapted for a wide range of sizes of oil, spice, meat and mustard cans, powder flasks, cake tins and similar work. Built in a variety of sizes.

Number of Machine	551	552
Weight, about ....pounds	1300	2000
Area of base of can, maximum ....inches	7 x 7	10 x 10
Height of can maximum...............................inches	12	14
Size of flywheel.......................................inches	24 x 3½	26 x 3½
Weight of flywheel...................................pounds	250	300
Speed of flywheel....................................R. P. M.	100	100

The "Toledo" No. 553 Grooving Machine

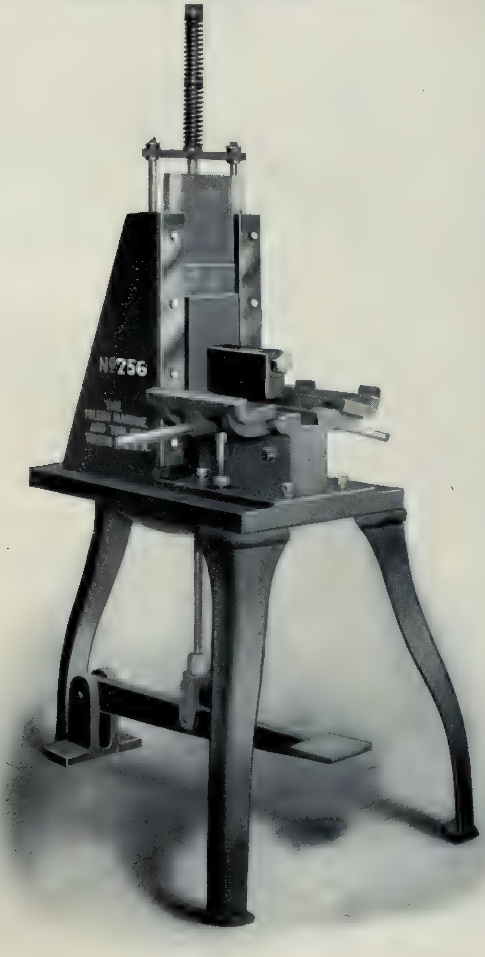


THIS illustration shows our Grooving Machine, fitted with tight and loose belt pulleys, automatic reversing and releasing clutch mechanism and swinging, removable end support for grooving horn.

Machine has capacity for rolling or setting down seams in metal as heavy as No. 20 gauge for air tight stoves, furnace and stove pipe, steel garbage and ash cans, and similar work.

Number of Machine	553
Page of Catalogue	429
Code Word	
Price	$.....
Weight, about ... pounds	1000
Will roll seam in length ... inches	30
Will roll metal in thickness ... B. W. G.	20
Size of belt pulleys, diameter and face ... inches	12 x 3
Speed of belt pulleys ... R. P. M.	300
Size of base to bolt on bench or stand, F. to B., R. to L. ... inches	12 x 16
Floor space over all, F. to B., R. to L. ... inches	22 x 68

The "TOLEDO" No. 256 Can Body Forming Machine Combined Foot and Hand Power



THIS Machine is designed for forming bodies of square or oblong cans and similar work. The Machine is fitted with an iron table and standards, and is constructed so that, when the forming jaws are thrown back, the work can be easily and quickly inserted or removed. The machine is adapted to forms of various sizes and shapes, and will produce uniform accurate work.

Number of Machine	255	256
Price without forms	$.....	$.....
Code word without forms	....	....
Weight without forms, about...pounds	500	800
Section of largest can...inches	6 x 6	12 x 12
Length of largest can...inches	12	12

The "Toledo" Toggle Foot Presses

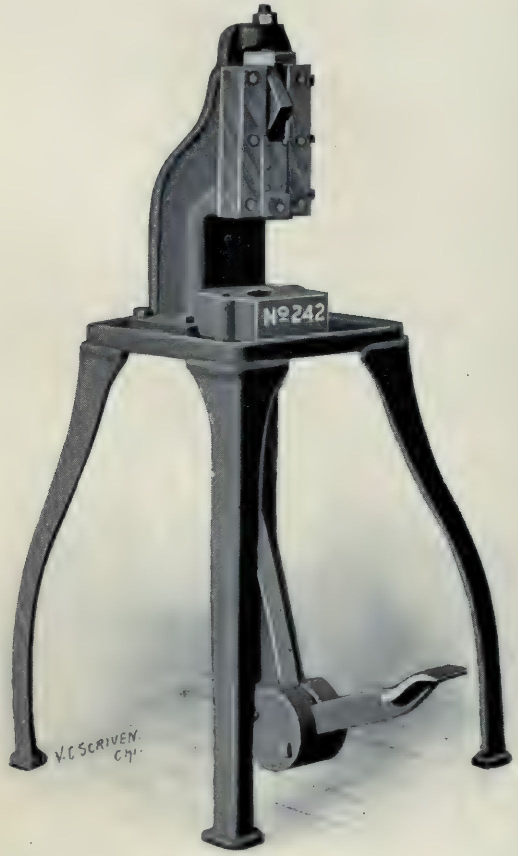
Number of Press	241	242	243	244
Old Number	1	2	3	4
AS BENCH PRESS Code Word	....	....	....	....
Price including bolster plate	$.....	$.....	$.....	$.....
MOUNTED ON LEGS Code Word	....	....	....	....
Price including bolster plate	$.....	$.....	$.....	$.....
Price for extra bolster plate	$.....	$.....	$.....	$.....
Price extra for die holder	$.....	$.....	$.....	$.....
Weight mounted on legs, about..pounds	300	375	475	650
Capacity 1-in. hole through brass..gauge	19	18	17	16
Distance back from center of slide..inches	3	3½	4	5
Distance bed to slide, all up......inches	5	6	7	8
Area of bed and bolster plate.....inches	6 x 6	7 x 7	8 x 8	10 x 10
Thickness of bolster plate.........inches	¾	¾	1	1
Size of opening in bed ....inches	3 x 3	3½x3½	4 x 4	5 x 5
Stroke of slide, greatest..........inches	¾	1	1	1¼
Will receive punch stem (round)..inches	1 1/16	1 1/16	1 1/16	1 1/16
Size of table......................inches	16 x 16	18 x 18	20 x 20	22 x 24
Floor space ....inches	26 x 26	28 x 28	30 x 30	34 x 36

The "Toledo" Pendulum Foot Presses

Number of Press	251	252	253	254
Old Number	1	2	3	4
AS BENCH PRESS Code Word	....	....	....	....
Price including bolster plate	$.....	$.....	$.....	$.....
MOUNTED ON LEGS Code Word	....	....	....	....
Price including bolster plate	$.....	$.....	$.....	$.....
Price for extra bolster plate	$.....	$.....	$.....	$.....
Price extra for die holder	$.....	$.....	$.....	$.....
Weight mounted on legs, about...pounds	275	375	475	600
Capacity 1-in. hole through brass..gauge	19	18	17	16
Distance back from center of slide..inches	3	3½	4	5
Distance bed to slide with stroke up inches	5	6	7	8
Area of bed and bolster plate.....inches	6 x 6	7 x 7	8 x 8	10 x 10
Thickness of bolster plate.........inches	¾	¾	1	1
Size of opening in bed............inches	3 x 3	3½x3½	4 x 4	5 x 5
Stroke of slide, greatest..........inches	1¼	1½	2	2
Will receive punch stem (round)..inches	1 1/16	1 1/16	1 1/16	1 1/16
Size of table......................inches	16 x 16	18 x 18	20 x 20	22 x 24
Floor space ....inches	26 x 26	28 x 28	30 x 30	34 x 36

The "Toledo" No. 242 Toggle Foot Press

(Old No. 2.)



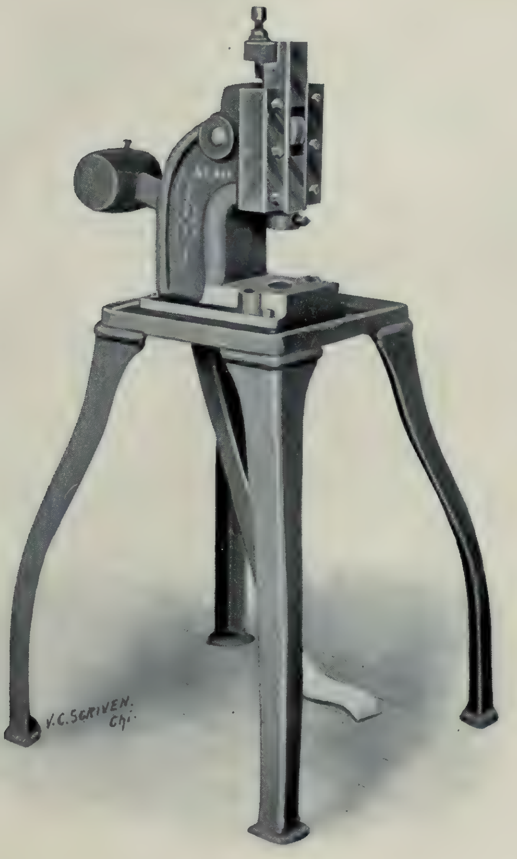
TOGGLE Foot Press here illustrated, is designed for stamping buttons and jewelry, setting down rivets, punching small blanks from heavy metal, for perforating, forming and embossing sheet metal goods, and for all work where the surface is small and a heavy blow is required. The toggle joint produces an effective pressure.

This Press is fitted for much heavier work than can be done on an ordinary foot lever press of similar dimensions. Built in several sizes. Total weight about 375 lbs.

Dimensions, page 431
Code Word, as Bench Press..........
Code Word on Standards.............

The "Toledo" No. 252 Pendulum Foot Press

(Old No. 2.)

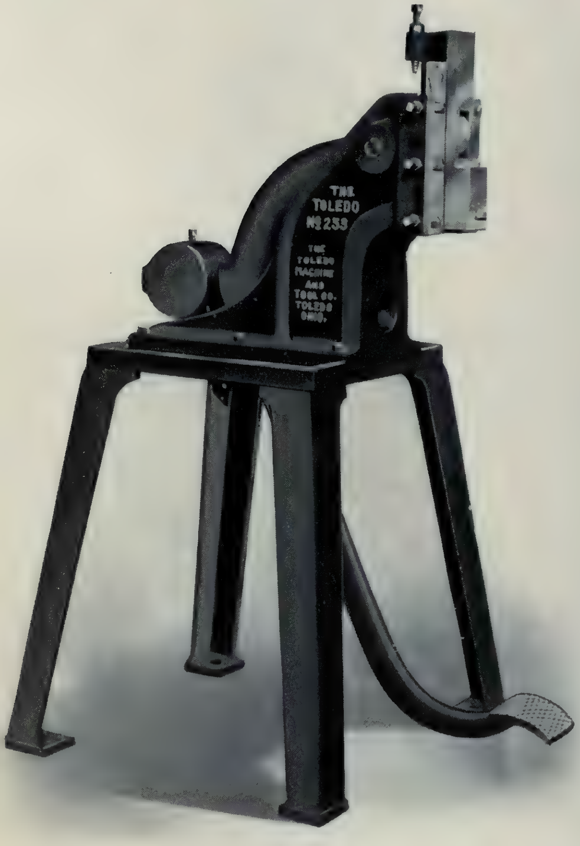

V.C. SCRIVEN. Chi.

THIS Press is designed for perforating, stamping, forming and lettering small articles, such as buttons, pocketbook trimmings, jewelry, cyclometer parts and small brass goods. Press has gibbed slide with stop screw at the top for adjusting the stroke, and is exceedingly strong and well made throughout, filling the demand for a low priced Press for performing the work mentioned.

Furnished as a Bench Press, or on iron table as shown. Total weight about 375 lbs.

Dimensions, page 431
Code Word, as Bench Press..........
Code Word on Standards............

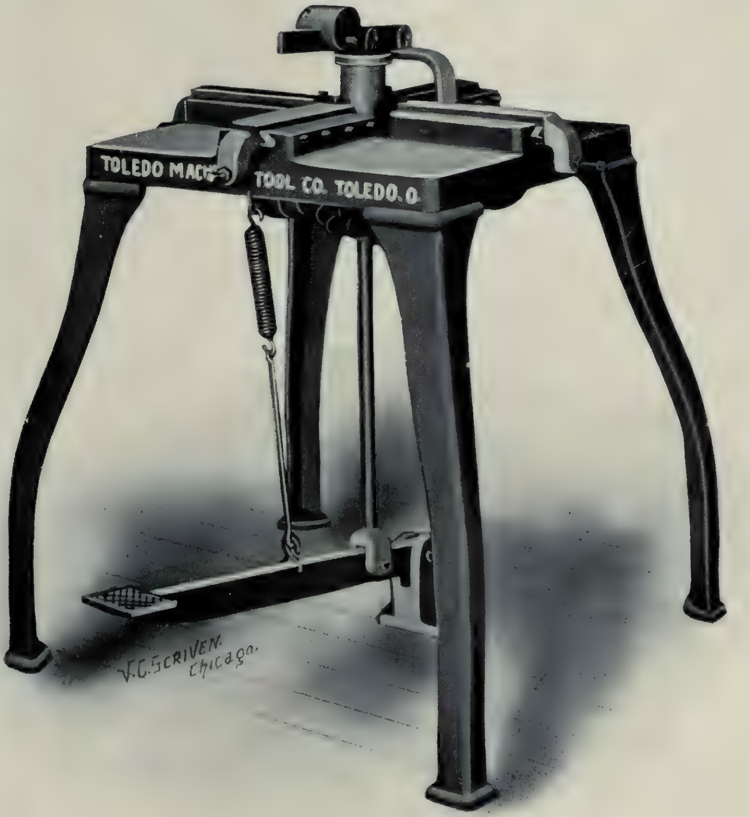
The "Toledo" No. 253 Pendulum Foot Horning and Riveting Press



THIS is a very handy Press for shops not equipped with power. It is adapted and used for light riveting and clinching work, also for perforating ear holes in pails and for other light blanking work.

Dimensions	....
Weight	500
Distance back from center of slide	5¼
Distance from center to horn hole to slide, stroke up	6
Stroke of slide, greatest	2
Recess in slide for punch stems	1¹⁄₁₆
Horn hole diameter, long	3 x 8
Floor space over all	30 x 30
Code Word	....

The "Toledo" No. 249 Foot Gang Perforating Press


TOLEDO MACH & TOOL CO. TOLEDO. O
V.C. SCRIVEN. Chicago.

OUR Foot Gang Perforating Press, designed specially for stove burners, is built with special slides for perforating the four rod holes in burners at each stroke, with the most accurate results.

Adapted to perforating small openings for holes in electric light sockets, and any small rectangular or cylindrical work requiring accuracy as well as rapidity in producing the parts in large quantities.

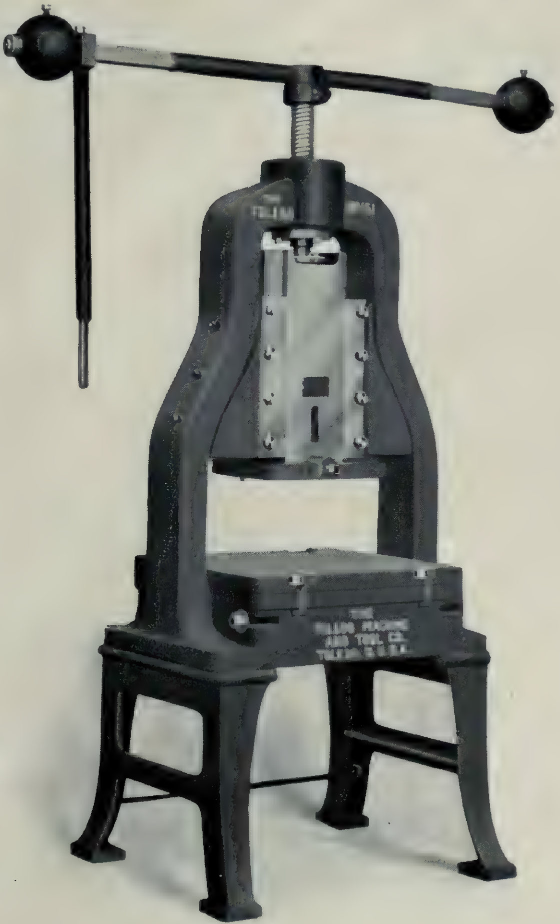
Built in several sizes.

Number of Machine	249
Code Word	....
Weight, about ... pounds	600
Diameter of largest shell ... inches	5
Area of face of slides ... inches	2 x 2

The "Toledo" Hand Screw Presses

	Arch			Straight-Side			Over-Hanging			
Number of Machine	150	151	152	153	154	155	156	157	158	159
Page of Catalogue	....	437	....	438	....	....	439	440	....	....
Code Word	....	....	....	....	....	....	....	....	....	....
Price with bolster, slide knockout	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price extra for removable front	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Price extra for wiring bolster	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....	$.....
Weight, about ... pounds	2000	3100	4700	1000	1800	2900	650	1000	2000	3100
Bed area, F. to B., R. to L. ... inches	22 x 24	26 x 28	30 x 32	12 x 12	16 x 15	15 x 18	9 x 15	10 x 16	14 x 16	20 x 22
Area of flange on slide, F. to B., R. to L. ... inches	10 x 14	12 x 16	15 x 21	....	....	....	....	7 x 10	8 x 10	15 x 16
Opening in bed, F. to B., R. to L. ... inches	16 x 18	19 x 22	20 x 25	7 x 7	10 x 10	10 x 13	4 x 8	6 x 9	10 x 10	10 x 12
Distance between housings ... inches	24	28	32	12	15	18	....	....	....	....
Distance center of slide to machine ... inches	....	....	....	....	....	....	5	5½	8	12
Distance bed to slide, all up ... inches	10	12	12	9	10	11	6	7	10	10
Maximum stroke of slide ... inches	6	7	8	6	7	7	4½	5	6	6
Diameter of slide recess ... inches	2	2	2	2	2	2	1 9/16	1 9/16	1 9/16	1 9/16
Thickness of bolster ... inches	2	2	2¼	1¼	1½	1¾	1⅜	1½	1½	1¾
Diameter of screw ... inches	2	2¾	3¼	2	2¾	3¼	1⅝	2	2½	3¼
Lead of screw, double thread ... inches	1¼	1	1½	1¼	1¾	1¾	1	1¼	1	1½
Extreme length of lever arm ... inches	65	76	80	60	60	60	52	63	58	70
Floor space of legs, F. to B., R. to L. ... inches	30 x 32	38 x 38	40 x 46	28 x 25	36 x 28	40 x 32	28 x 24	32 x 26	35 x 30	42 x 32

The "Toledo" No. 151 Arch Screw Press

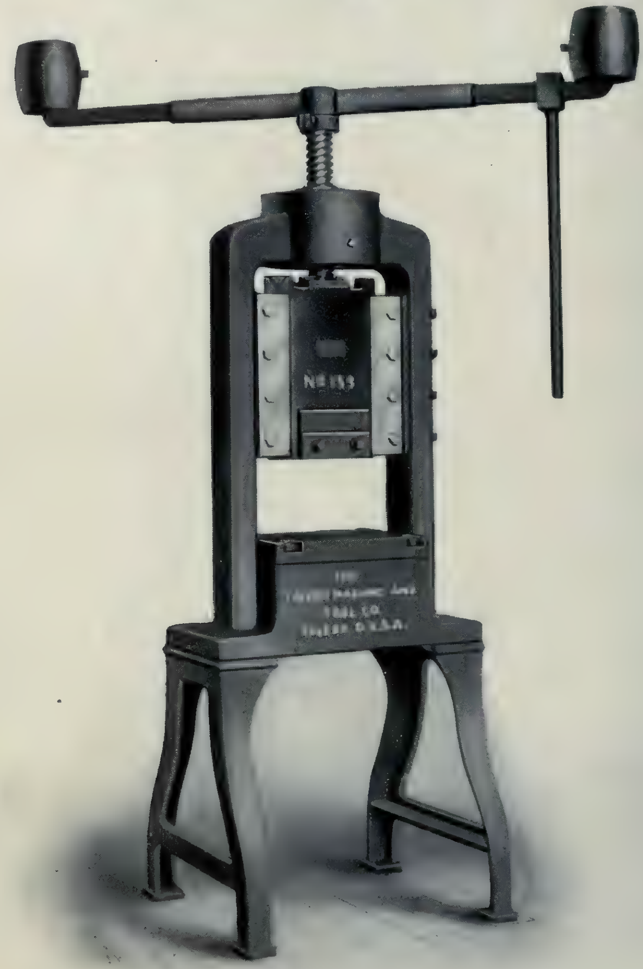


THIS Press has capacity equal to that of our No. 51 Power Press, and is widely used in small can factories and other shops not equipped with power.

It is also an indispensable machine in die and tool rooms for testing large blanking and forming dies. This Press is furnished with a wide flange on slide, the slide bearings being extra long, operating in long gibs having adjustment for taking up any possible wear. The screw is a tough steel forging and operates in a phosphor bronze nut. All "Toledo" Screw Presses are furnished complete with an adjustable stop collar for adjusting the stroke. Total weight about 3,100 lbs.

Dimensions, page 436. Code Word...........

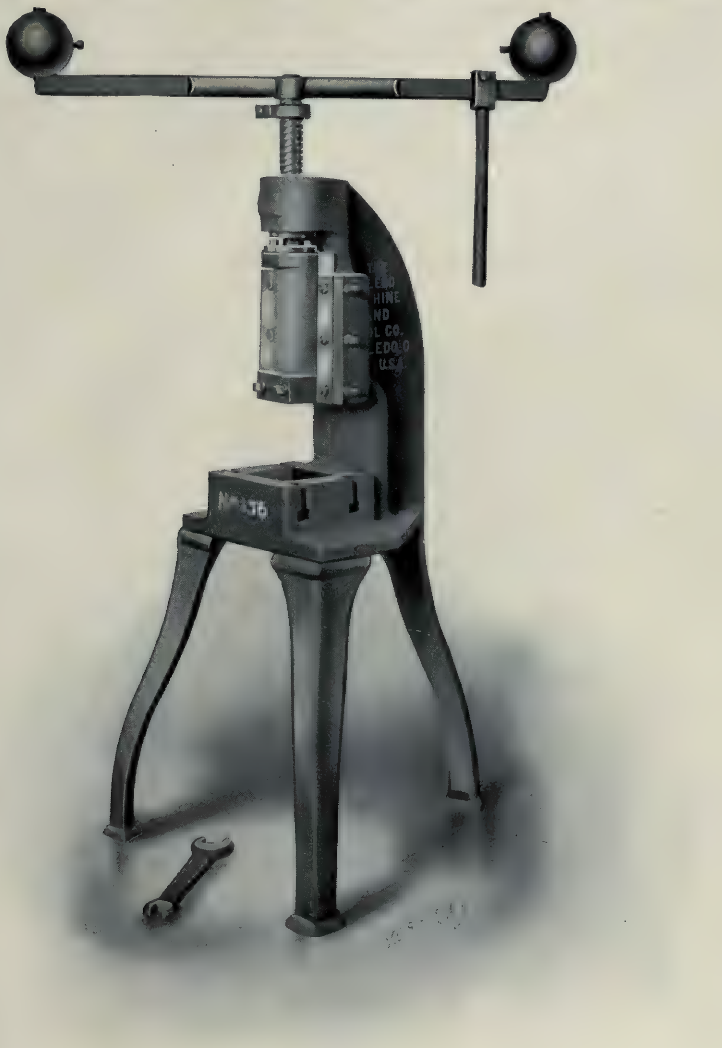
The "TOLEDO" No. 153 Straight Sided Screw Press



STRAIGHT Sided Screw Press No. 153 is, in size and construction, practically the same as our Power Press No. 53, described on page 158. It may also be used for operating stamping, embossing and forming dies requiring a long stroke and more power than can easily be developed in a foot press. The No. 154 Straight Sided Screw Press (which is the next larger size in this pattern), is used for embossing and lettering telephone slugs, baggage and trade checks, small medallions, etc. Total weight about 1,000 lbs.

Dimensions, page 436. Code Word............

The "Toledo" No. 156 Overhanging Screw Press

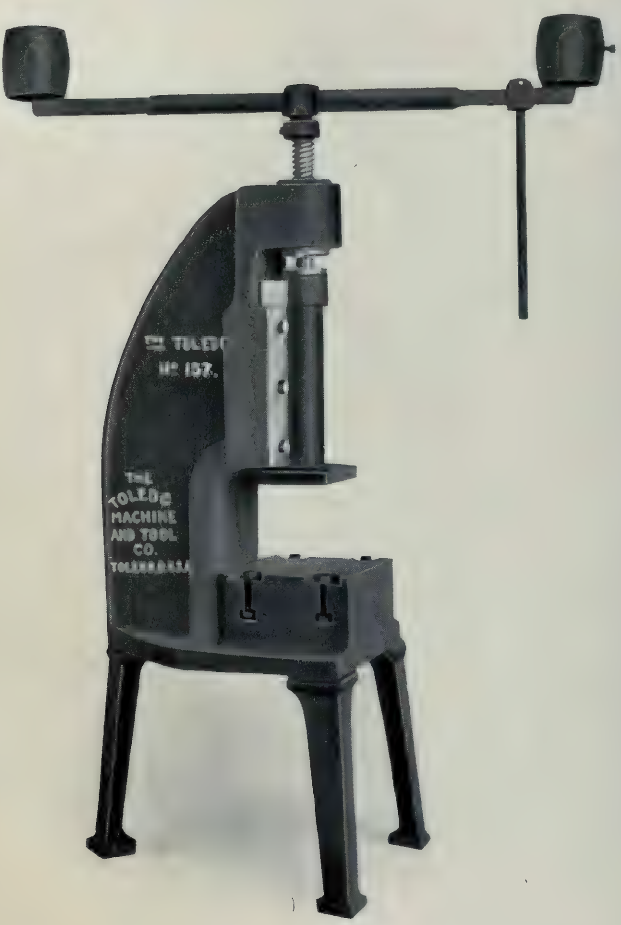


THIS Overhanging Screw Press is used largely by jewelers for cutting, stamping and embossing, and is also used quite extensively for small blank cutting, perforating, and forming in the manufacture of burner parts, small tubes, buttons, buckles, and similar work where it is not desirable to have power presses.

The slides are long and are provided with adjustable gibs. Screws are steel with triple thread running in a brass nut. Fitted with balance wheel or lever and weight balls, as desired. Total weight about 650 lbs.

Dimensions, page 436 Code Word............

The "Toledo" No. 157 Overhanging Screw Press



ONE of the larger sizes of Overhanging or Gap Screw Presses is shown in this illustration. In the manufacture of jewelry; in cutting, stamping and embossing burner parts, small tubes, buttons, buckles and similar articles, it is very efficient. Total weight about 1,000 lbs.

Dimensions, page 436. Code Word............

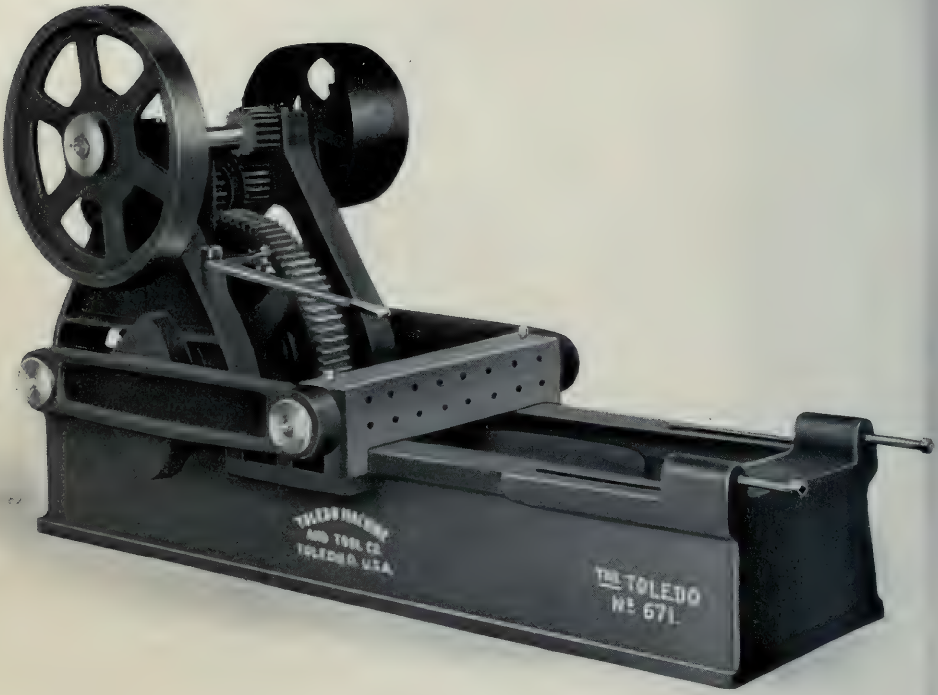
The "TOLEDO" Horizontal Bending and Forming Machines

THE illustrations of three sizes of our Bulldozers or Horizontal Bending and Forming Machines will give some idea of the general construction, strength and compact proportions of our design of this type of machine. The shafts are made of hammered high carbon steel. The gearing is machine cut from the solid. The medium and smaller sizes are fitted with our three-engagement automatic block clutch, while the larger and more powerful sizes are fitted with a powerful friction clutch which gives the operator complete control of the machine. This type of machine is adapted to a wide range of hot and cold bending in the manufacture of agricultural and other implement parts, steel frames and running gears for wagons, car trucks and other innumerable shapes and forms of round bar, T, angle and channel iron.

They are also frequently used for operating multiple perforating dies in the finishing of this class of work, and are furnished with a stroke or head travel, and distance or die space between head and bed end, to suit the various classes of work to be produced. Modifications can also be made in the width and length of head. Special features may also be embodied in these machines as shown by the large special machine with gap end.

Number of Machine.......	671	672	673	674	675	676	677
Page of Catalogue........	442	443	....	....	....	444	....
Code Word with Automatic Sliding Block Clutch.	....	....	....	....	....	....	....
Price	$....	$....	$....	$....	$....	$....	$....
Weight, about.....pounds	3600	5500	7800	12000	18000	24000	45000
Size of face of slide, inches	6x31	9x33	9x40	10x46	12x64	12x64	16x72
Stroke of slide.....inches	14	16	16	18	20	20	24
Standard die space with stroke down, inches	17	31	28	40	40	40	48
Diam. of belt pulley, inches	18	20	24	24	26	30	30
Width of belt pulley, inches	4	4½	6	8	8	10	10
Floor space over all, F. to B., R. to L., inches	40x90	42x112	48x116	55x128	75x140	75x146	82x185

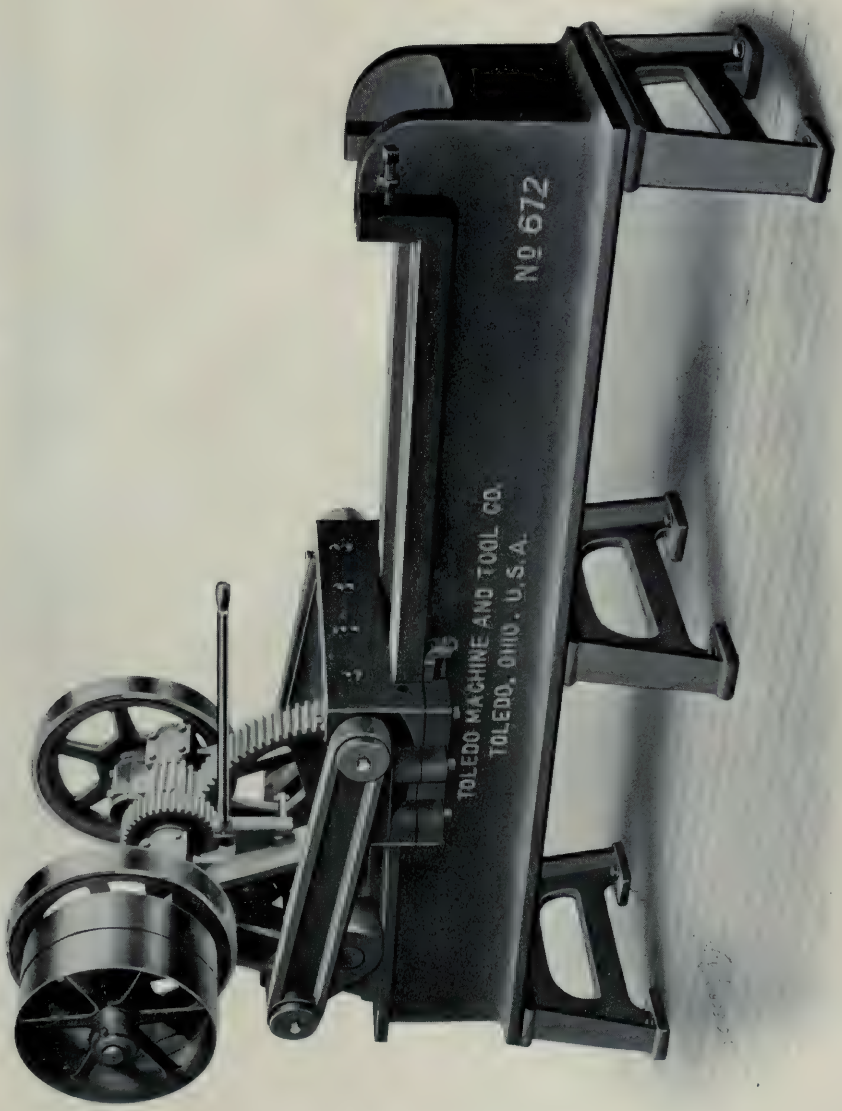
The "Toledo" No. 671 Horizontal Bending and Forming Press



THIS illustration shows one of our smallest sizes of Bulldozers, adapted to the bending and forming of baby carriage and truck parts, also small angles, channels and other shapes used in the manufacture of metal furniture, steel and brass beds, carriage trimmings and similar work. Total weight about 3,600 lbs.

General description, page 441. Dimensions, page 441. Code Word...........

The "Toledo" No. 672 Horizontal Bending and Forming Press



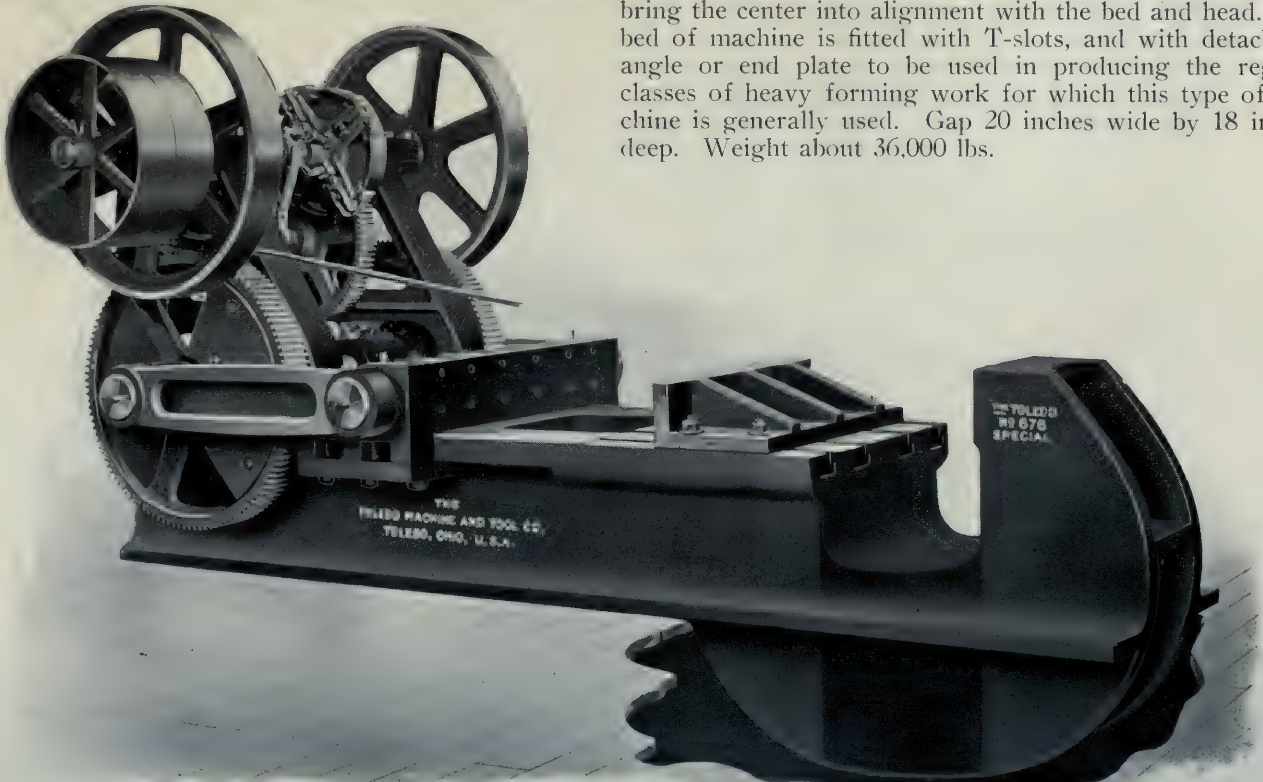
THIS Bulldozer is suited for forming tubing and flat bars or angles into shapes used in the manufacture of wheelbarrow frames, agricultural implements and similar work.

The gearing is machine cut from the solid, and the machine is fitted with automatic clutch. Total weight about 5,500 lbs.

General description, page 441. Dimensions, page 441. Code Word............

The "Toledo" No. 676 Special Horizontal Bending and Forming Machine

THIS illustration shows a special gap pattern of one of our heavier Bulldozers. Designed to accommodate wheels or flanges in pressing bearings or shaft bushings into position. The wheel or flange is dropped into the gap to bring the center into alignment with the bed and head. The bed of machine is fitted with T-slots, and with detachable angle or end plate to be used in producing the regular classes of heavy forming work for which this type of machine is generally used. Gap 20 inches wide by 18 inches deep. Weight about 36,000 lbs.


THE TOLEDO No 676 SPECIAL
THE TOLEDO MACHINE AND TOOL CO. TOLEDO, OHIO, U.S.A.

General description, page 441. Dimensions, page 441. Code Word...........

The "Toledo" Grinding Machines

Number of Machine	542	543	544
Old Number	2	3	4
Page of Catalogue	446	447	....
STYLE OF MACHINE	**Single End**	**Double End**	**Double End**
Code Word			
Price	$.....	$.....	$.....
Weight, about ... pounds	600	800	750
Size of emery wheel to be used on machine .. inches	20 x 2	20 x 2	20 x 2
Size of hole in emery wheel ... inches	1¼	1¼	1¼
Size of tight and loose pulleys, diam. and face inches	....	6 x 6½	6 x 6½
Size of tight pulley only, diam. and face ... inches	6 x 6½	....	....
Speed of pulleys ... R. P. M.	1800	1800	1800
Distance from center of wheel to frame ... inches	20	19	26
Floor space of base, F. to B., R. to L. ... inches	20 x 21	23 x 20	20 x 21
Floor space over all, F. to B., R. to L. ... inches	20 x 52	25 x 62	26 x 76

Note—Machine No. 543 has belt tightening idler in base of frame — belt to come up through floor; machine is also built without tightener and with countershaft.

The "Toledo" Wire Brush Wheel Grinding Machines

Number of Machine	545	546	547
Old Number	5	6	7
Page of Catalogue	....	....	....
	Double	**Single**	**Single**
Code Word	....	....	....
Price	$.....	$.....	$.....
Weight, about ... pounds	600	600	750
Size of wire brush wheel, diam. and face ... inches	20 x 6	16 x 14	20 x 6
Size of hole in wheel ... inches	1¼	1¾	1¼
Length of hub of wire brush wheel ... inches	6	6	6
Size of belt pulleys, diam. and face ... inches	6 x 6½	10 x 6	6 x 6½
Speed of belt pulleys ... R. P. M.	1800	1800	1800
Distance from center of wheel to frame ... inches	7	7	....
Vertical movement of table ... inches	2	2	2
Floor space of base, F. to B., R. to L. ... inches	20 x 38	20 x 28	20 x 28
Floor space over all, F. to B., R. to L. ... inches	30 x 44	30 x 38	30 x 35

Note—No. 546 has wheel between bearings.
Nos. 545 and 547 have wheel on ends of spindles.

The "Toledo" Strapping Machine

Number of Machine	548
Page of Catalogue	....
Code Word	....
Price	$.....
Weight, about ... pounds	350
Width of emery belt ... inches	4
Adjustment of sliding head, about ... inches	10
Size of emery belt flange pulley, diameter and face ... inches	12 x 4
Size of emery belt driving pulley, diameter and face ... inches	20 x 6
Distance from floor to center of emery belt pulleys ... inches	30
Size of tight and loose belt pulleys ... inches	6 x 4½
Speed of tight and loose pulleys ... R. P. M.	1100
Size of base of each head (round) ... inches	20
Floor space over all, F. to B., R. to L. ... inches	30 x 84

The "Toledo" No. 542 Single End Grinder

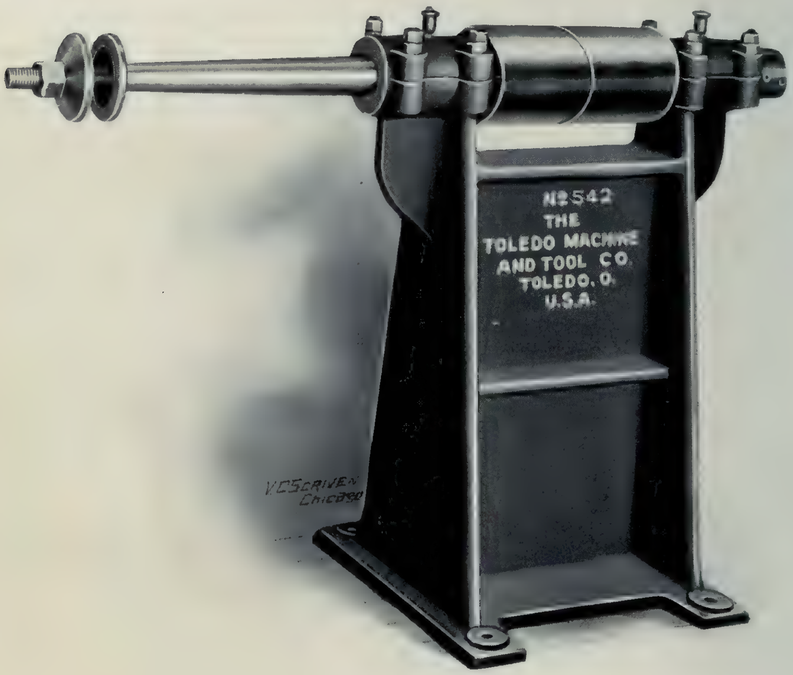
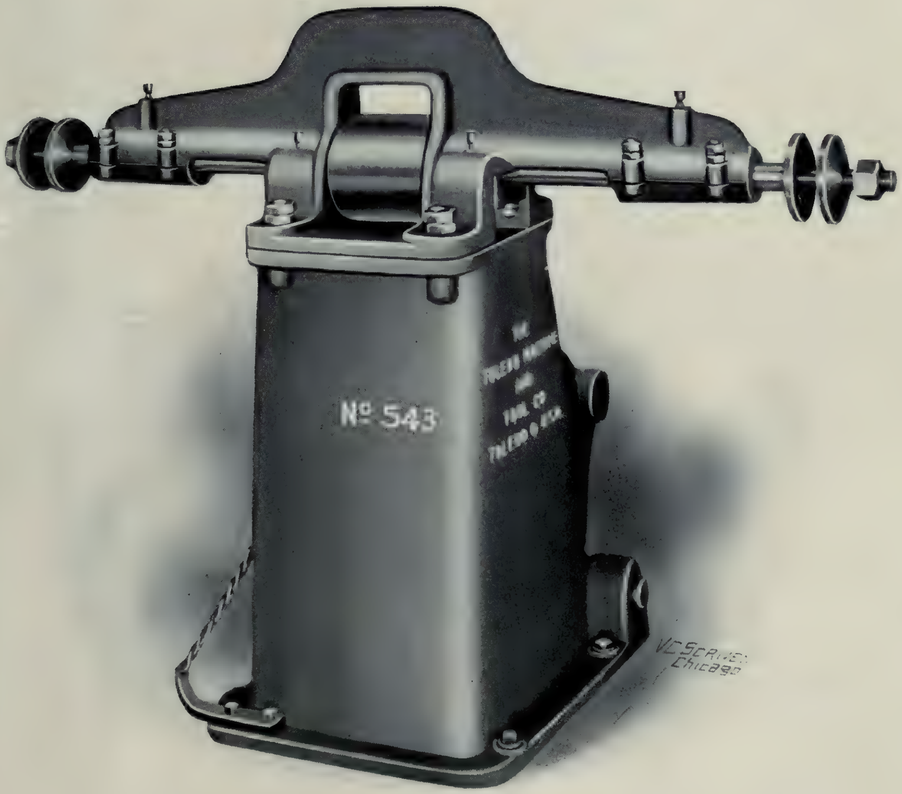


ILLUSTRATION shows extra long spindle for accommodating small wheels. Designed for polishing and grinding curves on deep work, such as small, deep scoops, etc. We furnish the same style with shorter spindle and with double spindle, with or without countershaft, as desired. Total weight about 600 lbs.

Dimensions, page 445. Code Word as shown...........

The "Toledo" No. 543 Double End Grinder



THIS Double-End Grinding and Polishing Machine is specially designed and adapted to shovel work. Distance from collar on spindle to frame, 18 inches. Designed for 6-inch double belt. It is exceptionally heavy and is provided with extra heavy high carbon steel spindles. Spindles are nearly 2 inches in diameter and accommodate 20-inch wheels with 1¼-inch bore.

Our Double-End Grinding and Polishing Machines are powerful enough to permit operator to work on each end at the same time.

Furnished with countershaft or with idler attachment, so that power can be transmitted from beneath the floor line or from countershaft above, as desired. Total weight about 800 lbs.

Dimensions, page 445.   Code Word............

The "Toledo" Power Screw Press

Number of Machine		125
Old Number		155
Page of Catalogue		449
	Code Word	....
Price		$.....
Weight complete, about	pounds	15000
Area of bed, F. to B., R. to L.	inches	33 x 30
Distance bed to slide, slide at lowest point	inches	8
Greatest stroke or travel of slide	inches	12
Diameter and face of pulleys for raising slide	inches	24 x 3
Diameter and face of pulleys for lowering slide	inches	18 x 3
Speed of raising pulleys	R. P. M.	300
Speed of lowering pulleys	R. P. M.	375
Distance, floor to center of pulley shaft	inches	105
Distance, floor to bed of press	inches	30
Distance, floor to top of screw, stroke up	inches	134
Floor space of base, F. to B., R. to L.	inches	54 x 62
Floor space over all, F. to B., R. to L.	inches	54 x 72

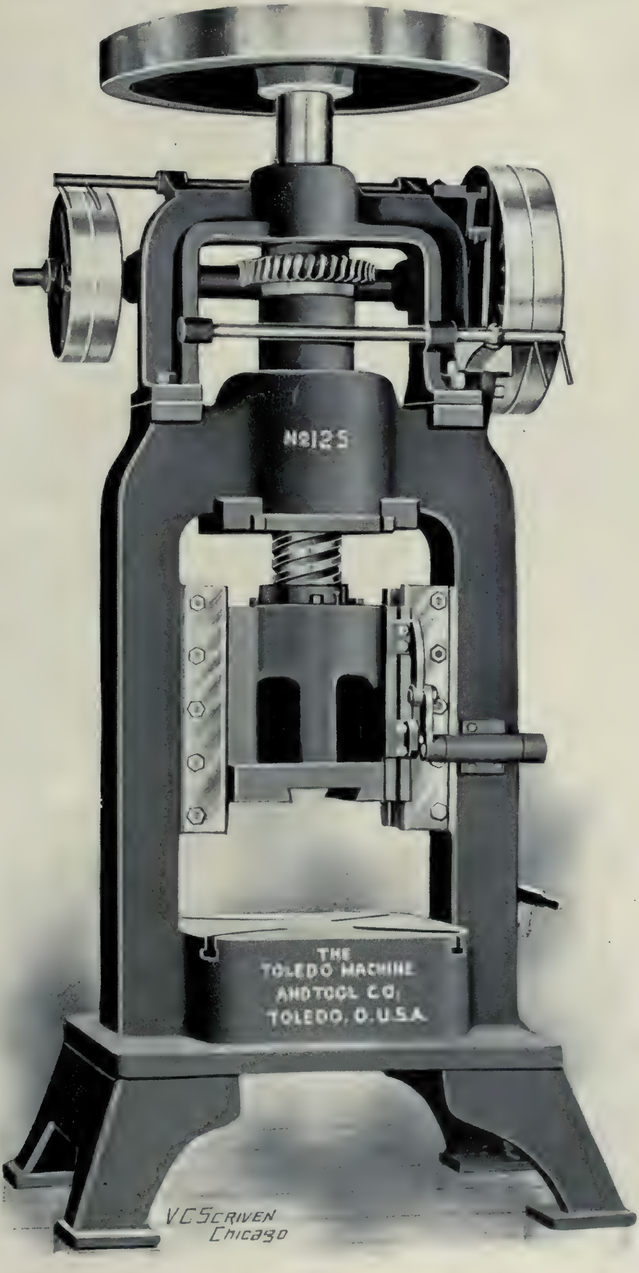
The "Toledo" Handle Bending and Driving Machine

Number of Machine		554
Old Number		12
Page of Catalogue		450
	Code Word	....
Price equipped as bender		$.....
Price equipped as driver		$.....
Price equipped both for driving and bending		$.....
Weight complete, about	pounds	2700
Diameter and face of belt pulleys	inches	24 x 4
Speed of belt pulleys	R. P. M.	160
Strokes of slide per minute		9
Floor space of base, F. to B., R. to L.	inches	82 x 22
Floor space over all, F. to B., R. to L.	inches	90 x 42

The "Toledo" Shovel Strap Finishing Rolls

Number of Machine		558	559
Old Number		3	....
Page of Catalogue		426	427
	Code Word	....	....
Price		$.....	$.....
Weight, about	pounds	2600	2800
Diameter and face of rolls	inches	10 x 3	10 x 3
Distance between housings	inches	24	30
Diameter and face of belt pulleys	inches	24 x 4	24 x 4
Speed of belt pulleys	R. P. M.	80	80
Floor space over all, F. to B., R. to L.	inches	40 x 56	40 x 63

The "Toledo" No. 125 Power Screw Press

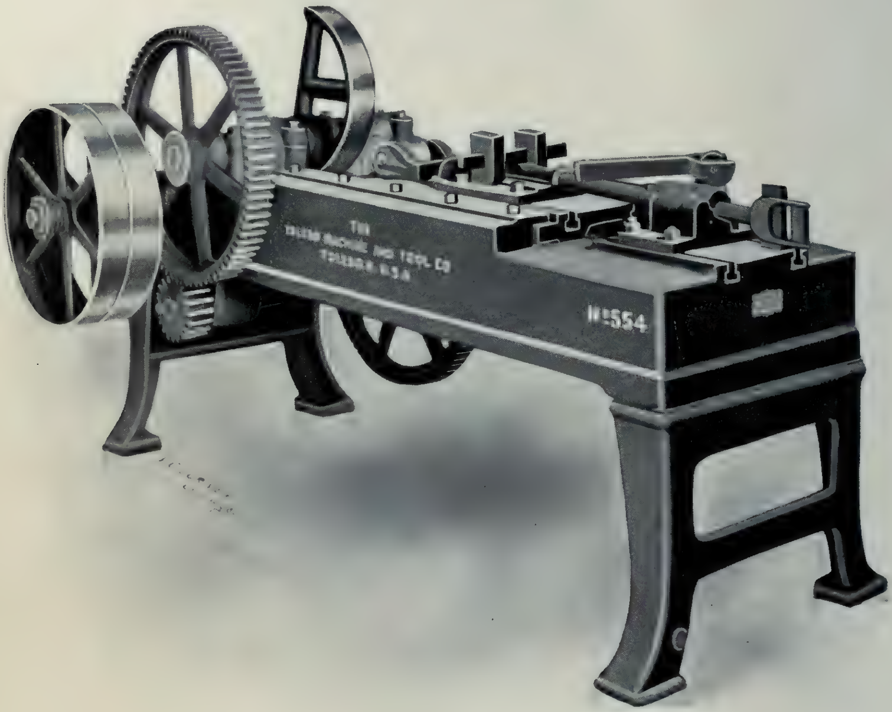


THE above Press, having a long stroke and belt drive, is particularly adapted to deep, heavy forming work on deep scoops, shovels and similar parts. Has capacity for forming 200 to 225 dozen shovels per day.

Dimensions, page 448.

The "Toledo" No. 554 Handle Bending Machine

(Old No. 12.)



THIS Machine is designed for bending the handles for welded or plain back shovels. It is so constructed that the attachments may be easily removed and replaced by others, converting it into a handle driving machine for forcing or driving the hollow back shovels on to the handles.

Capacity, 200 to 300 dozen handles per day. Total weight about 2,700 lbs.

Dimensions, page 448

Code Word, for Handle Bending Machine..................
Code Word, converted into Driving Machine.............
Code Word, equipped for both Driving and Bending........

The "Toledo" Chamfering Machine

Number of Machine		555
Page of Catalogue		452
Code Word		....
Price		$.....
Weight, about	pounds	1200
Will chamfer work to radius	inches	10
Diameter and face of belt pulleys	inches	20 x 3
Speed of belt pulleys	R. P. M.	120
Floor space of base, F. to B., R. to L.	inches	31 x 38
Floor space over all, F. to B., R. to L.	inches	36 x 48

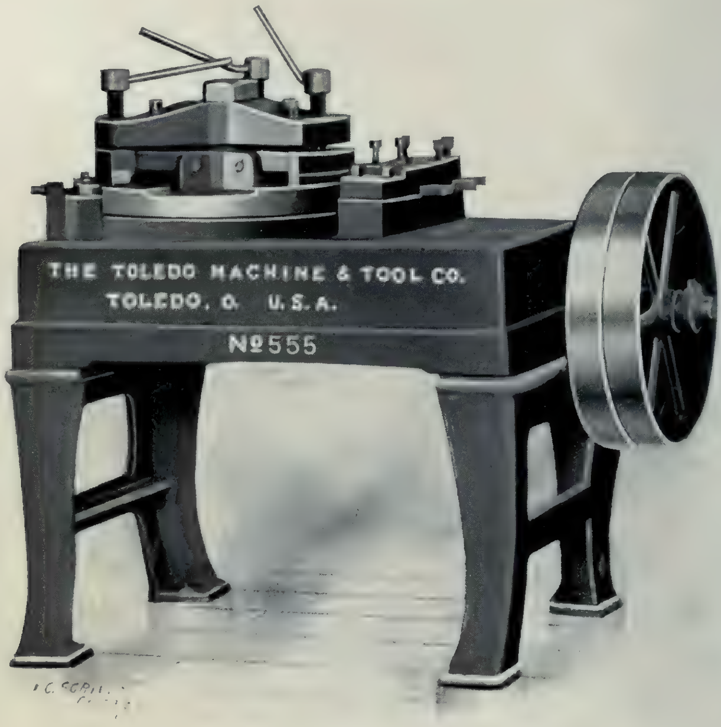
The "Toledo" Single Head Drilling Lathe

Number of Machine		557
Old Number		11
Page of Catalogue		....
Code Word		....
Price		$.....
Weight, about	pounds	480
Diameter and face of pulley on lathe	inches	3 x 3½
Speed of pulley on lathe	R. P. M.	1700
Diameter and face of pulley on countershaft	inches	10 x 2½
Speed of pulley on countershaft	R. P. M.	510
Floor space of base, F. to B., R. to L.	inches	26 x 24
Floor space over all, F. to B., R. to L.	inches	26 x 38

The "Toledo" Double Head Drilling Lathe

Number of Machine		556
Old Number		12
Page of Catalogue		453
Code Word		....
Price		$.....
Weight, about	pounds	670
Diameter and face of pulleys on lathe	inches	3 x 2½
Speed of pulleys on lathe	R. P. M.	1700
Diameter and face of pulleys on countershaft	inches	10 x 2¼
Speed of pulleys on countershaft	R. P. M.	510
Floor space of base, F. to B., R. to L.	inches	26 x 36
Floor space over all, F. to B., R. to L.	inches	26 x 43

The "Toledo" No. 555 Chamfering Machine



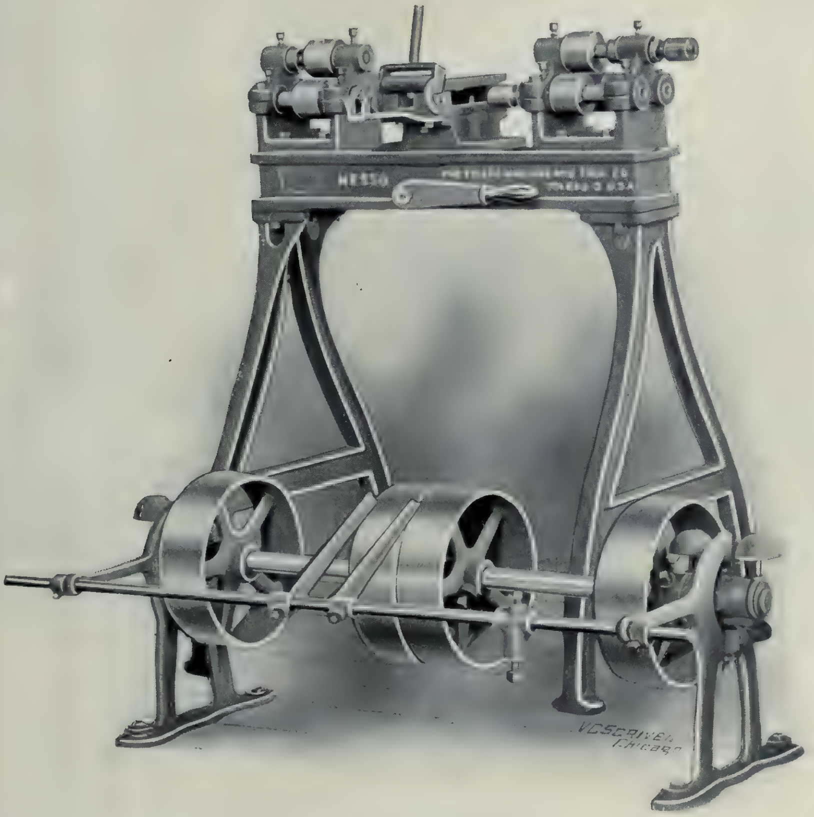
OUR improved Chamfering or Edge Finishing Machine is designed for chamfering or beveling the edges of shovel socket straps, and a similar line of work.

Fitted with three cutting tools. Machine is kept in continuous motion and arranged in such a manner that the operator can remove and insert straps, without stopping machine, and finish the chamfering of both edges of strap in one handling.

Capacity, 200 dozen per day. Total weight about 1,200 lbs.

Dimensions, page 451. Code Word............

The "TOLEDO" No. 556 Double Head Drilling Lathe



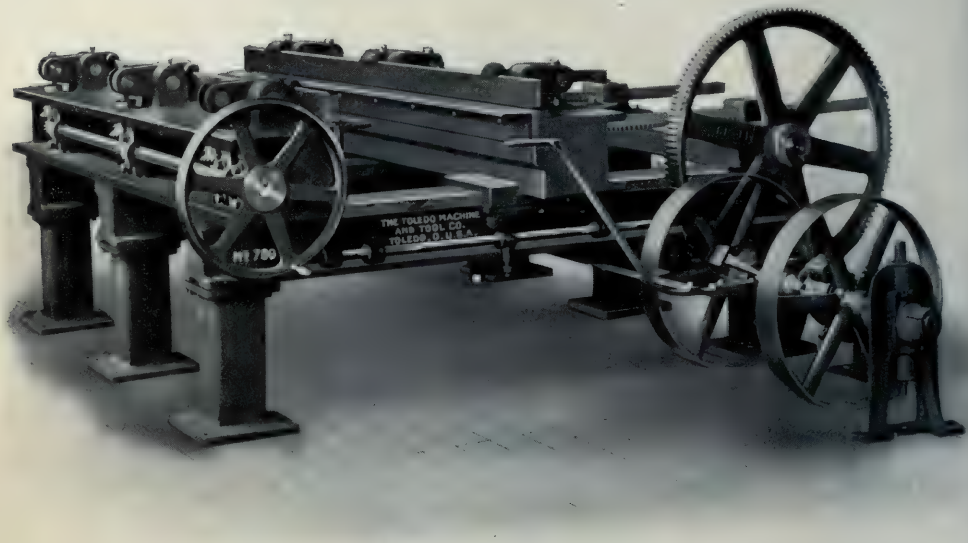
THIS Lathe is specially designed for drilling holes through the "D" part of shovel handles, drilling two holes from each side, holes meeting in the center, thus making a neat, uniform appearance where the rivets enter. A fifth or extra spindle is used for holding the counterbore for counter-boring the holes after they have been drilled, enabling the drilling and counter-sinking to be completed in one operation and handling.

Handle is not moved in the machine or clamping fixture until after the two holes have been finished; this is accomplished by means of a lever feeding attachment or slide.

Furnished with 5 chucks for holding drills and counterbore, and with countershaft. Total weight about 670 lbs.

Dimensions, page 451. Code Word............

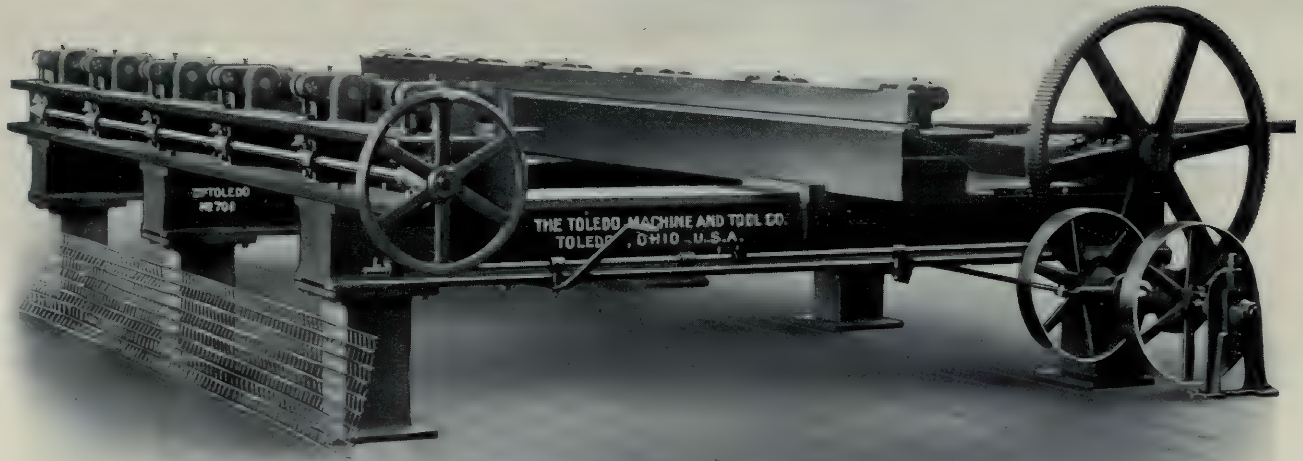
The "Toledo" No. 700 Metal Expanding Machine



THE illustration shows our 8-Foot Metal Expanding Machine, designed for expanding metal lath after the sheets have been perforated or slitted. Machine has capacity for sheets 96 inches long, and is fitted with friction clutch with automatic stop on both forward and return movement. The movement of the head is 27 inches.

Number of Machine	700	701
Page of Catalogue	454	455
Code Word	....	....
Price	$.....	$.....
Weight ... pounds	7700	22000
Length of sheets ... feet	8	18
Width expanded to maximum ... inches	28	72
Thickness of metal ... gauge	26	10

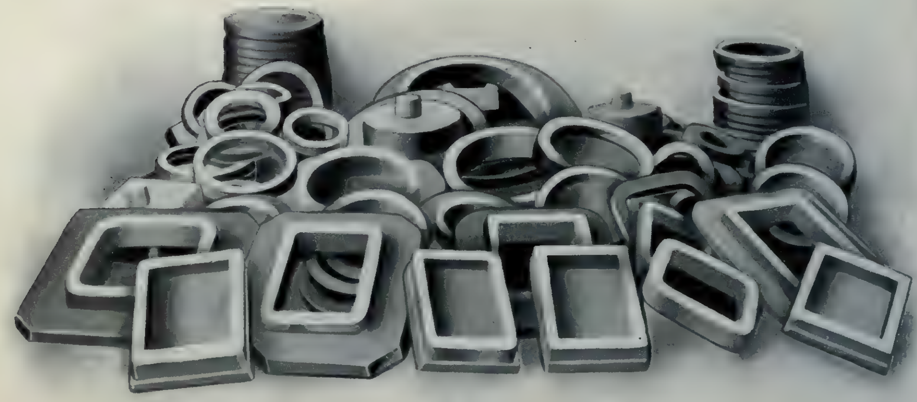
The "Toledo" No. 701 Metal Expanding Machine



OUR latest design 18-Foot Metal Expanding Machine is fitted with friction clutch, and with automatic stop on both the forward and return movement of sliding head or frame; this head or frame has transverse movement of 6 feet. Both the stationary and movable head are fitted with simultaneous bevel gear clamping attachment of powerful and quick action. Designed specially for expanding metal used in reinforced concrete construction. Total weight about 22,000 lbs.

Dimensions, page 454. Code Word...........

FORGING DEPARTMENT



THIS illustration shows a few of the various shapes and sizes of forgings we are constantly producing for the die-making and metal-working trade in general. Our forgings for blanking dies are made from endless tool steel rings, securely welded to refined iron backing plates. The advantages and superiority, wherever possible, of this construction over pieced or built-up dies, is obvious to all who have used them; they are unbreakable, require less shut height, are easily handled because light, and hold their shape much better when hardened.

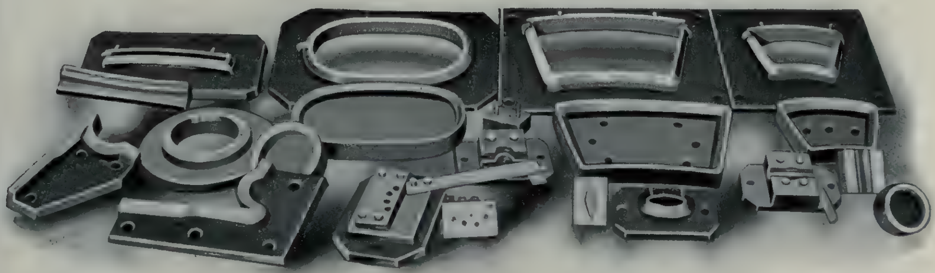
We also make a specialty of high carbon hammered steel forgings for crank shafts and other machine parts.

Many of our customers are equipped to make their own dies, and as we are in position to furnish forgings promptly for all classes of die and machine work, they can obtain the best results by having us make their forgings for blanking, trimming, forming, embossing, drop forging and miscellaneous dies from our special high-grade cutting edge steel.

For those who have not the facilities for hardening or tempering large dies, we wish to say that we are unusually well equipped to do the work and, with our expert labor, can give the very best results possible.

In ordering forgings, send blue prints and paper or steel templates of the shape required.

DIE DEPARTMENT



ON this and the following pages are shown a few only, of the many forms of dies and samples of the work they produce. Our die department is one of the largest and most modernly equipped die tool-rooms in the country, so that we are able to produce the largest, as well as the smallest and most intricate forms of dies used in the manufacture of all classes of blanking, forming, swaging and embossing work.

Our long experience in this line enables us to advise our customers of the most practical forms of die construction and the best methods for producing their work.

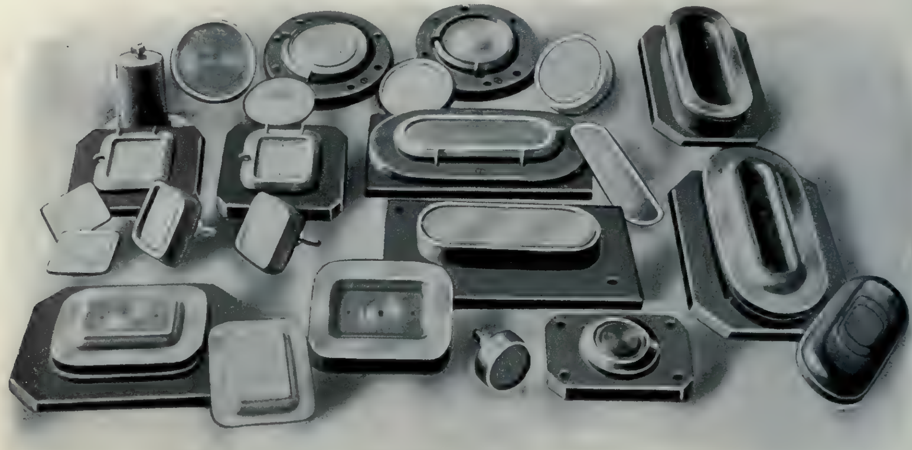
We are prepared to advise on every possible form or character of work made from any kind of sheet metal, and to guarantee results. We are willing at all times to make estimates on receipt of samples or drawings, and to furnish the necessary equipments of presses, dies and special machines and tools used in the manufacture of sheet metal products.

The illustration above shows a few of the varied sizes and shapes, and the form of construction used in dies for blanking and perforating.

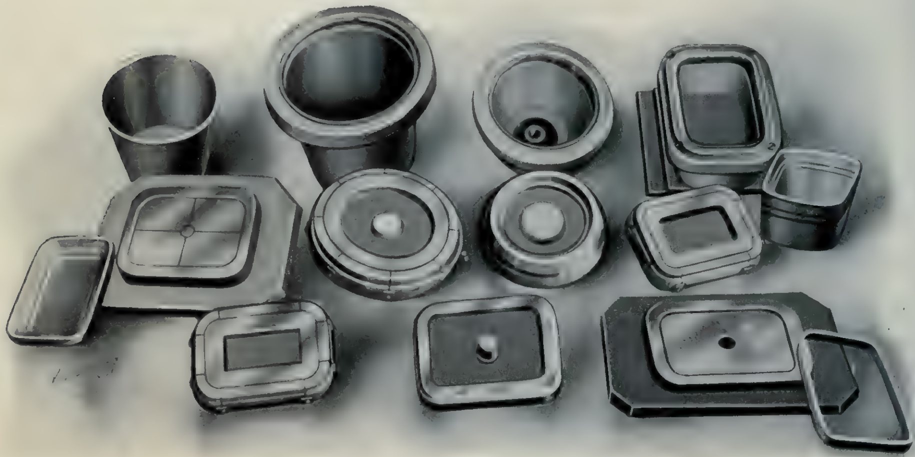
The heavy, substantial construction of our form of blanking dies, with endless forged steel cutting edges securely welded to backing plates, has proven by long continued service the merit of our claims, and has demonstrated our ability as designers and builders in this line.

No dies are too small for us to undertake, and none too large for our facilities to handle, and *we can produce any results obtainable or practical in the various forms of sheet metal construction.*

Combination Blanking and Forming Dies

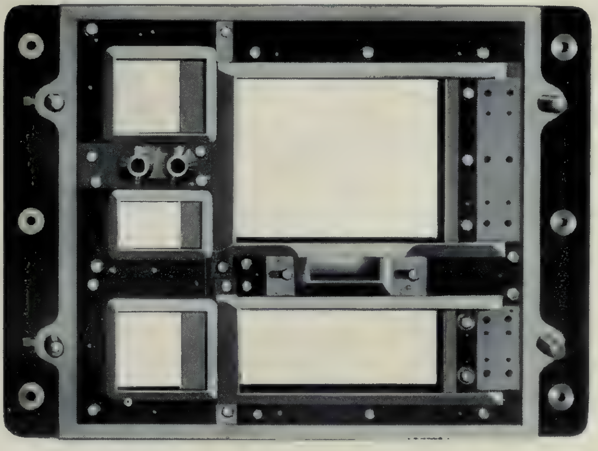


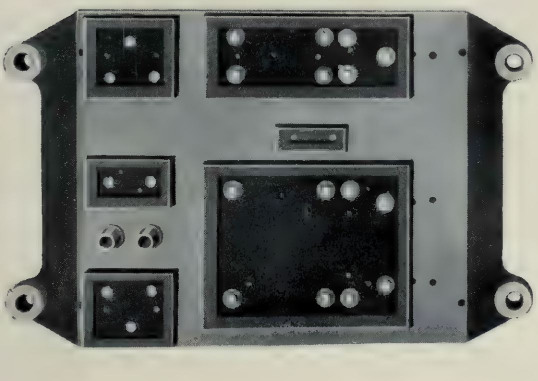
Wiring Dies



THESE illustrations give some idea of the construction and the various forms or shapes of dies used for cutting, drawing and forming, as well as wiring and finishing parts used in the manufacture of pieced tin and stamped ware. We design and build a complete equipment of presses, dies and other special machines and tools for every known variety of work of this nature. Dies can be made for either genuine or false wiring. Dies of this kind are operated in special presses, such as our Nos. 12 to 14; 41 to 45; 50 to 52; 114 to 116; and, for the larger class of work, our No. 90 series of Presses.

Gang or Group Dies

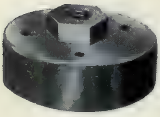




THIS is one of the many forms of gang or group dies used for blanking, perforating, and shearing, at one stroke, as many openings and perforations as are desired on work, such as stove fronts, steel furniture, etc.

The dies are grouped and mounted in holders fitted with heavy, self-setting guide pins, eliminating the danger of damage in setting the dies. The cutting edges are made of endless steel forged rings of unusual height and thickness, of a special high-grade steel particularly suited for this purpose. These cutting edges are securely welded to substantial backing plates, and carefully hardened and tempered. The material used produces a tough and hard cutting edge, making it possible to obtain from 50 to 60 per cent. more wear than is obtained from dies of cheaper construction.

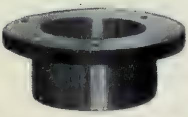
Set of Drawing Dies as Used With "Toledo" Toggle Press

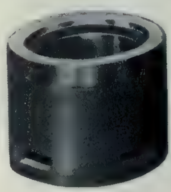


THE three parts, comprising a set of drawing dies arranged to operate in our Toggle Drawing Presses, and intended for the first operation in drawing a seamless, tapering pail, are shown in this group. These dies are made of a special, very dense grade of cast iron or semi-steel and are capable of producing a great many thousand stampings without perceptible wear. The construction of the dies permits redressing or finishing repeatedly, thus affording a comparatively inexpensive die construction suited to the highest class of standard work.

We obtain the most satisfactory results on work of the highest order, with our new form of die construction and Toggle Drawing Presses.

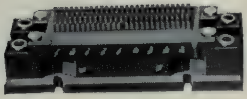
Taper shell produced with dies.

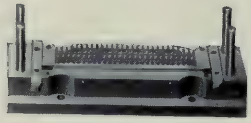




THE three parts, comprising a set of dies, for the finishing or fourth operation in producing stampings for a tapering or flaring pail, as shown in this illustration. It was formerly deemed necessary to make use of the spinning lathe, and the expensive finishing or burnishing operation to remove the wrinkles or buckles which were permitted to form in producing a tapering stamping. This spinning or burnishing operation, which is the most expensive in producing deep stamped work, is one that we have eliminated entirely through our form of die construction.

Gang or Group Dies

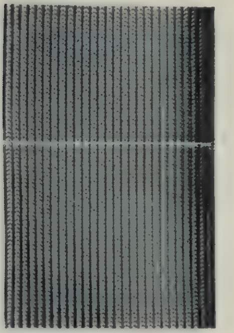


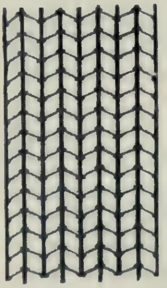


THE set of Gang or Group Dies herewith illustrated is intended for multiple gang slitting, perforating and forming, in presses fitted with automatic roll feeds.

This is but one of the many forms of construction used for dies of this type.

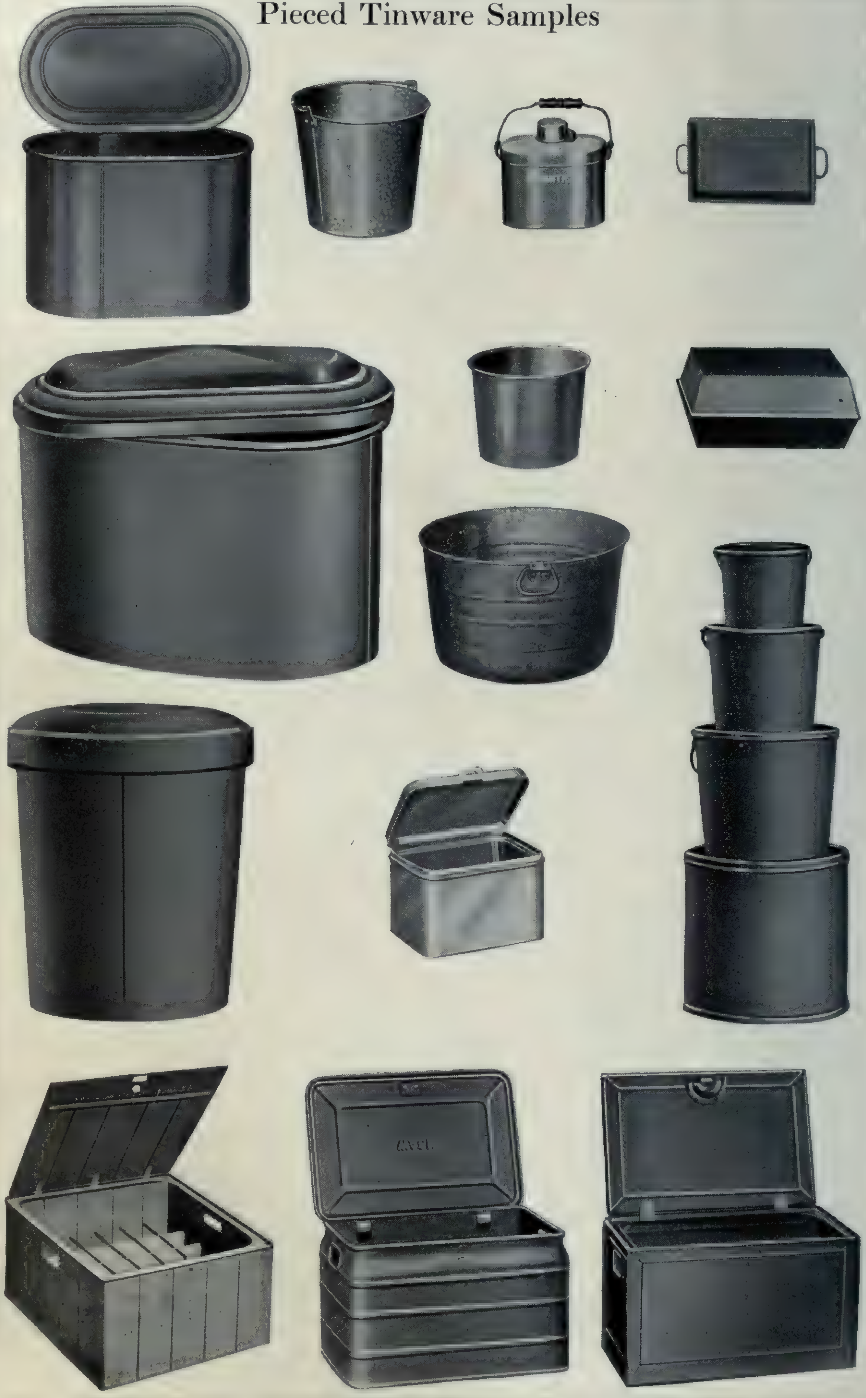
The holders are made of steel. The upper holder is fitted with 81 punches independently inserted in three rows of 27 punches each. These punches are held by means of gibbed keys and securely locked with the set screws shown. The upper holder is also fitted with four tool steel bushings, hardened and ground, into which fit the four pillars or pilot-pins which are fastened in the lower steel holder. By this means the dies are made self-setting, eliminating entirely the danger of damage occurring during the setting of the dies and, at the same time, providing a means of independent self-alignment in the dies irrespective of the press. The lower dies are independently inserted in the lower steel holders in 27 sections, held in position by means of gibbed keys.

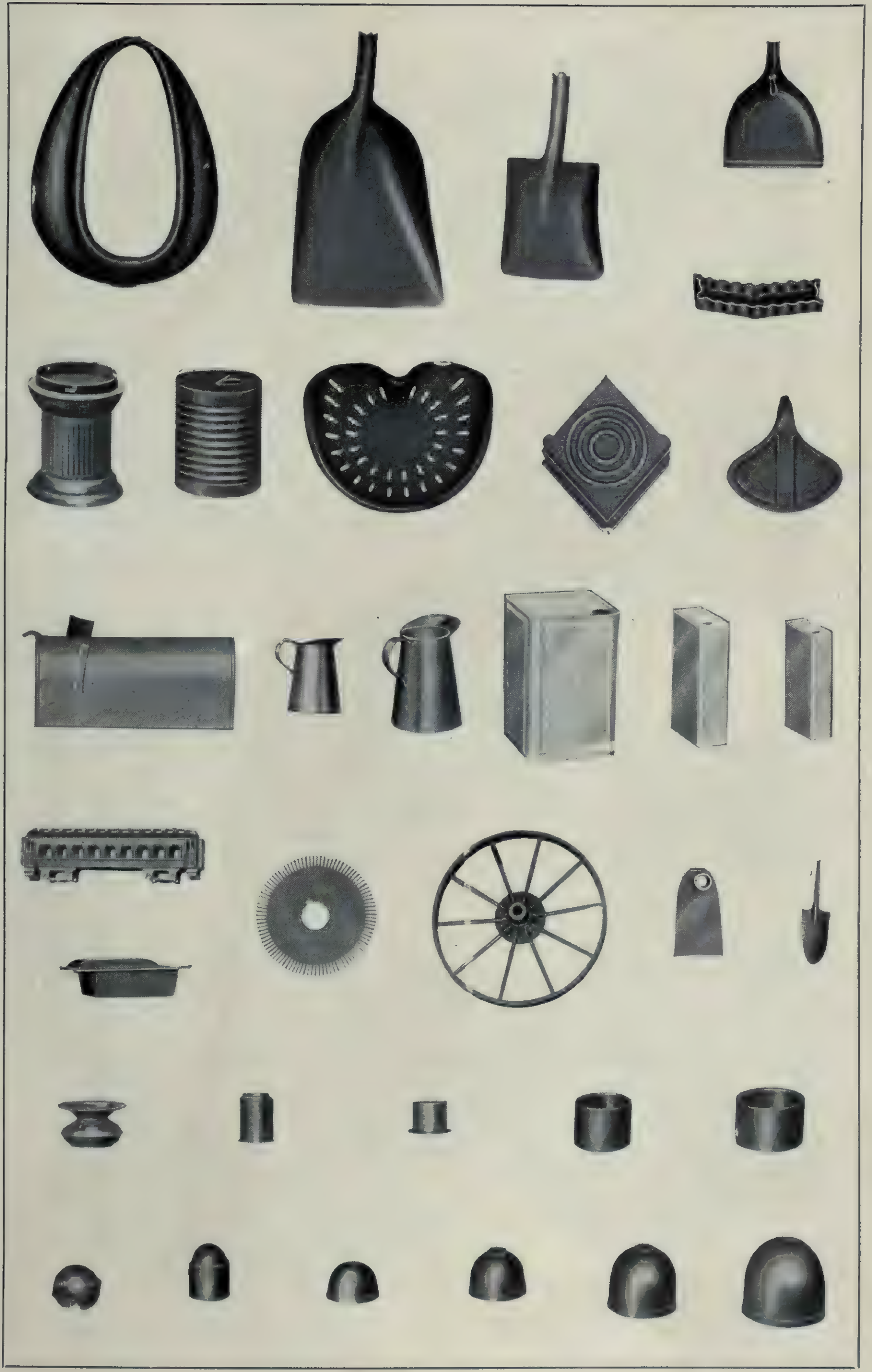


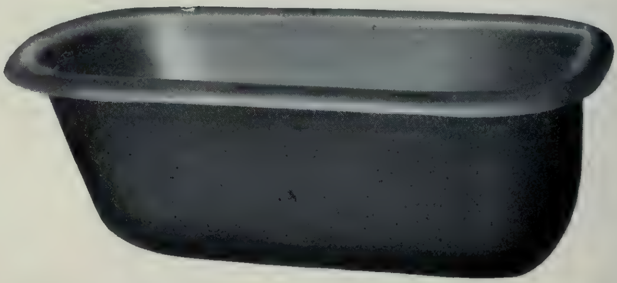


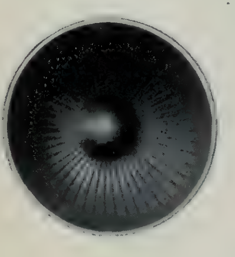
The sample of the slit and formed section of steel sheet shown, represents the result produced by the dies. The work is intended for expanded metal lath, which is afterwards put into metal expanding machines and expanded to the entire limit of its stretch.

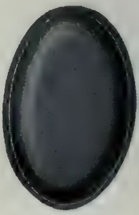
Pieced Tinware Samples



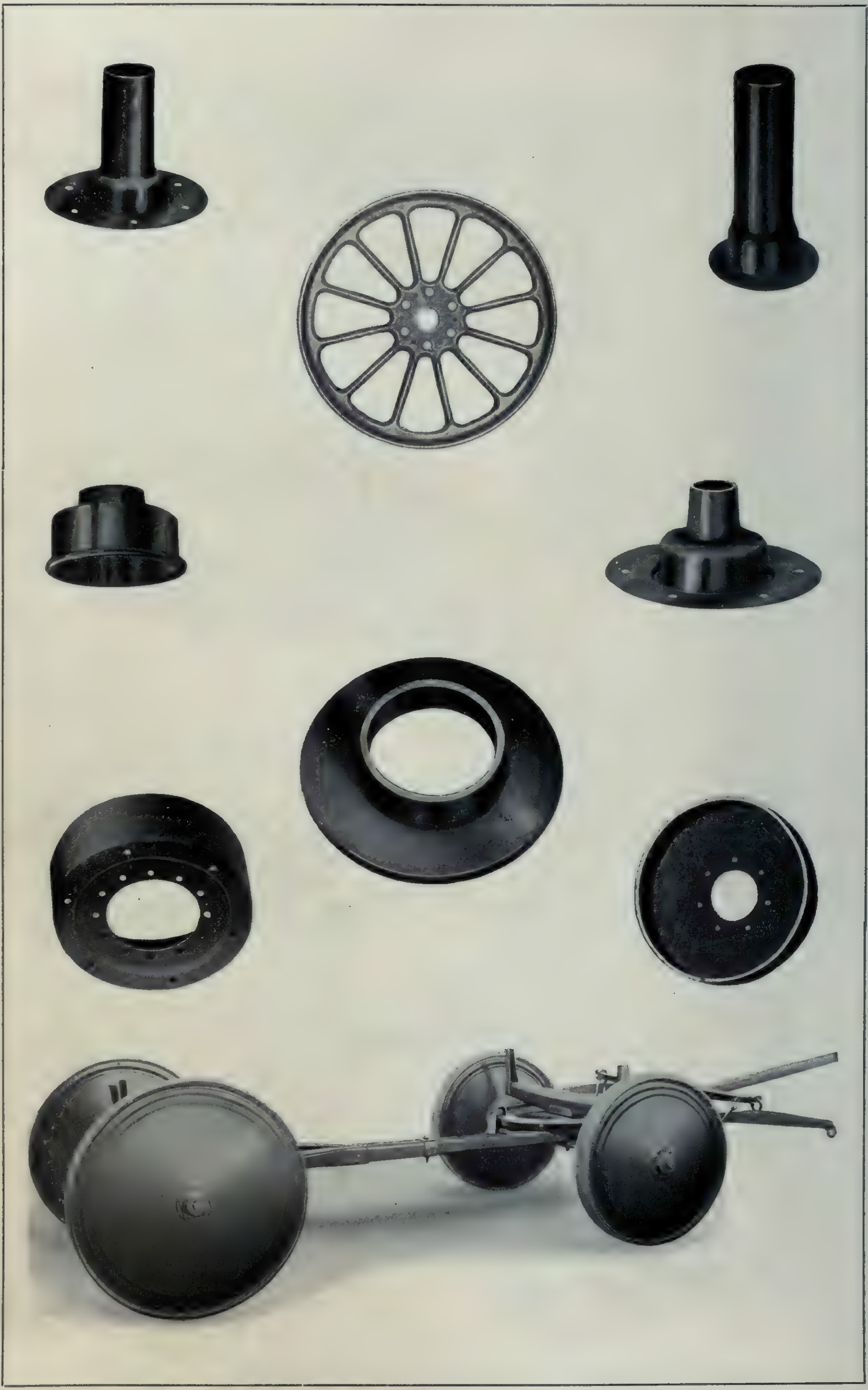


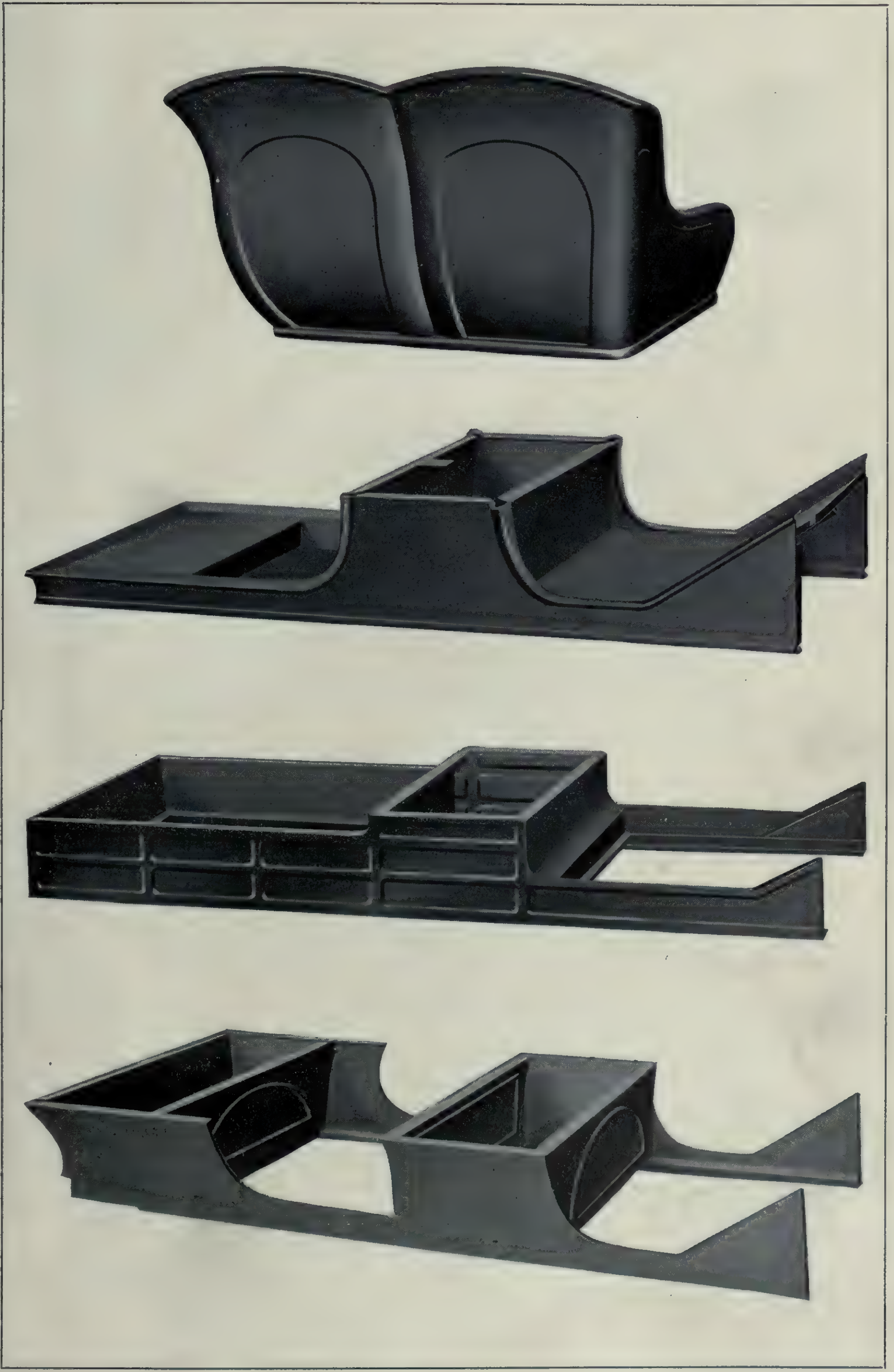


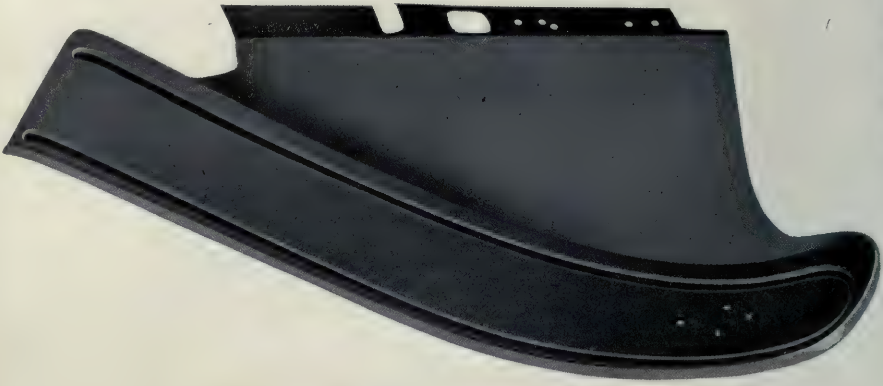


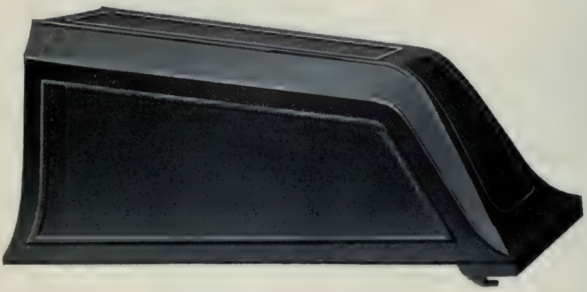


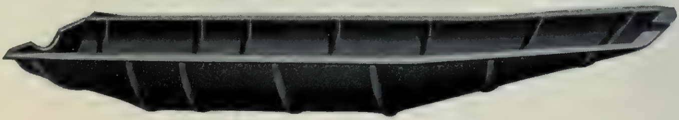
WHITE FROST



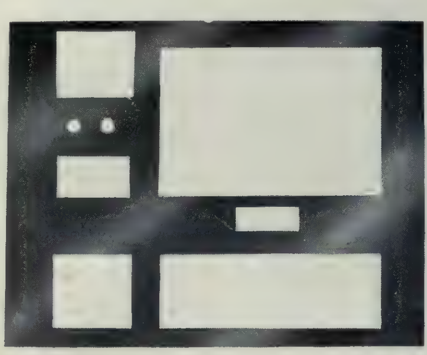


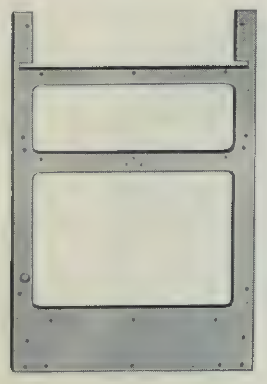


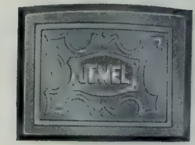


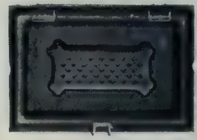


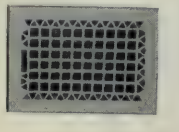
Made by The “Toledo” Power Presses

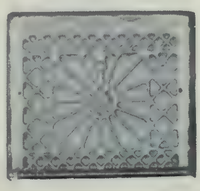


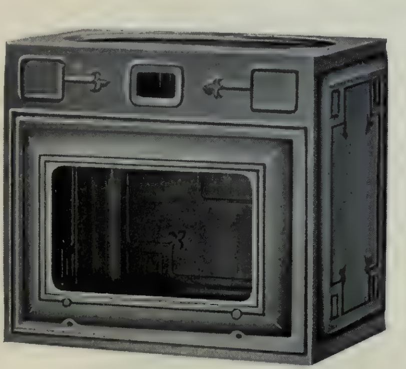


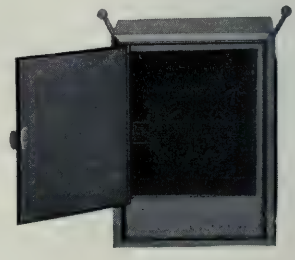

JEWEL



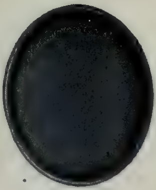


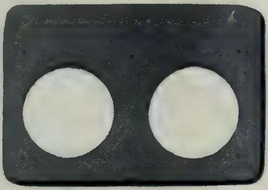


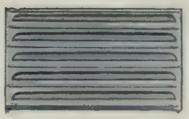


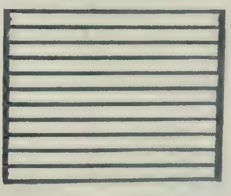


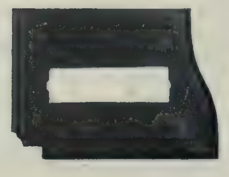
Stampings for Stove Trimmings and Parts



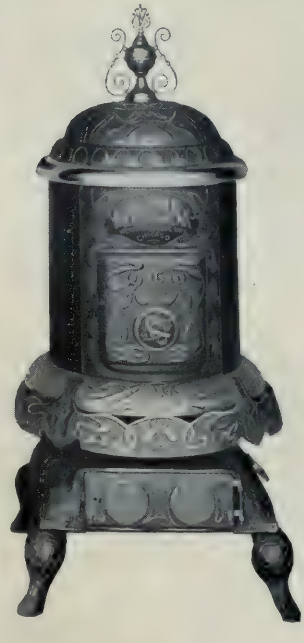


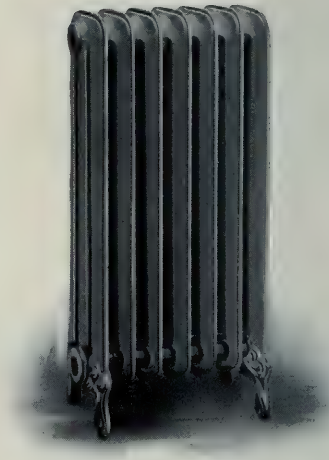


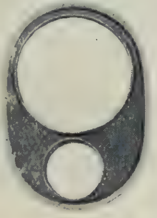


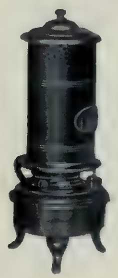


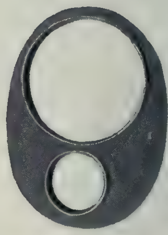
Stampings for Radiator and Stove Trimmings and Parts

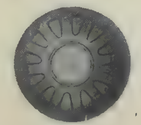


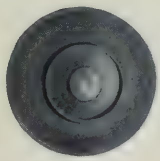


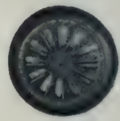


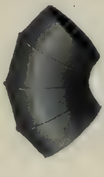


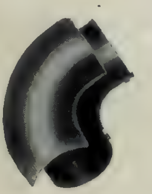


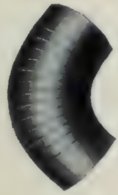


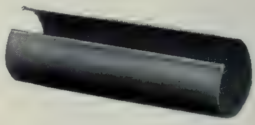




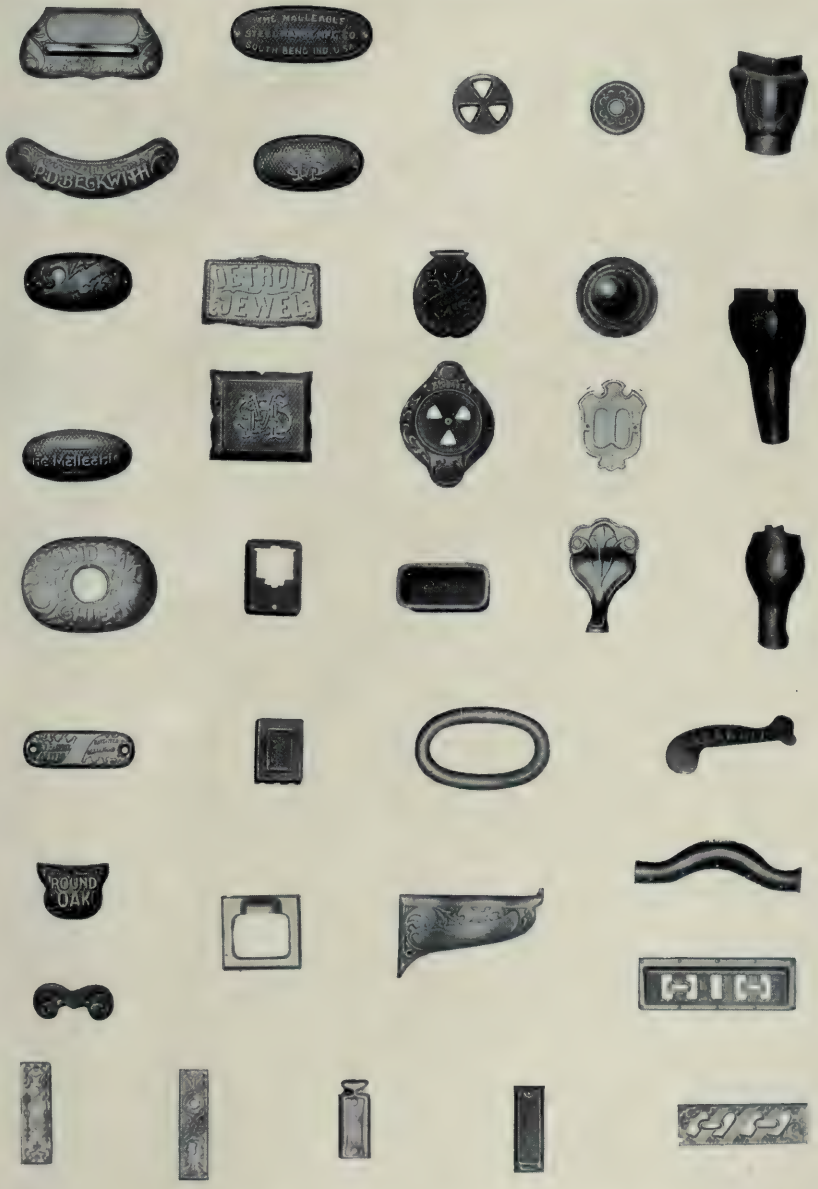








Stampings for Stove Trimmings and Parts



These illustrations show the many shapes which we are producing on the "Toledo" drop hammers, and in drawing and embossing presses.

Approximate Diameter of Blanks for Shells from ¼″ x ¾″ to 6″ x 6″

Diam.	Height of Shells								
	¾″	1″	1¼″	1½″	1¾″	2″	2¼″	2½″	2¾″
¼″	.90	1.03	1.15	1.25	1.34	1.43	1.52	1.59	1.67
½″	1.32	1.50	1.65	1.80	1.93	2.07	2.18	2.29	2.39
¾″	1.67	1.89	2.06	2.25	2.41	2.56	2.70	2.84	2.96
1″	2.00	2.22	2.45	2.66	2.83	2.98	3.19	3.32	3.46
1¼″	2.30	2.54	2.80	3.10	3.21	3.40	3.57	3.74	3.91
1½″	2.50	2.86	2.98	3.19	3.52	3.76	3.96	4.10	4.31
1¾″	2.90	3.16	3.43	3.68	3.74	4.12	4.34	4.51	4.65
2″	3.12	3.46	3.75	4.00	4.22	4.46	4.67	4.90	5.08
2¼″	3.42	3.73	4.03	4.28	4.52	4.79	5.00	5.23	5.41
2½″	3.71	4.02	4.32	4.61	4.87	5.12	5.35	5.60	5.80
2¾″	3.98	4.23	4.61	4.90	5.17	5.44	5.67	5.92	6.13
3″	4.25	4.57	4.87	5.17	5.47	5.63	6.18	6.22	6.45
3¼″	4.47	4.85	5.13	5.48	5.75	6.02	6.31	6.56	6.80
3½″	4.76	5.12	5.46	5.76	6.06	6.35	6.61	6.87	7.12
3¾″	5.02	5.38	5.72	6.04	6.35	6.63	6.88	7.15	7.42
4″	5.29	5.65	6.00	6.32	6.64	6.94	7.22	7.48	7.74
4¼″	5.50	5.90	6.25	6.58	6.88	7.19	7.48	7.76	8.03
4½″	5.81	6.17	6.53	6.87	7.18	7.49	7.77	8.06	8.34
4¾″	6.17	6.45	6.81	7.15	7.48	7.80	8.10	8.38	8.75
5″	6.32	6.70	7.08	7.40	7.75	8.06	8.37	8.65	8.94
5¼″	6.58	6.95	7.32	7.66	8.05	8.35	8.65	8.95	9.24
5½″	6.82	7.15	7.56	7.93	8.29	8.60	8.92	9.22	9.48
5¾″	7.10	7.49	7.86	8.22	8.56	8.90	9.20	9.52	9.82
6″	7.32	7.74	8.12	8.47	8.82	9.15	9.48	9.78	10.10

Diam.	Height of Shells								
	3″	3¼″	3½″	3¾″	4″	4½″	5″	5½″	6″
¼″	1.75	1.82	1.89	1.92	2.02	2.13	2.26	2.36	2.46
½″	2.50	2.60	2.69	2.78	2.88	3.04	3.19	3.32	3.50
¾″	3.08	3.19	3.31	3.43	3.54	3.75	3.94	4.12	4.30
1″	3.59	3.74	3.86	4.00	4.13	4.35	4.57	4.78	5.00
1¼″	3.96	4.08	4.37	4.52	4.65	4.90	5.15	5.39	5.61
1½″	4.48	4.61	4.81	4.95	5.10	5.40	5.67	5.91	6.19
1¾″	4.92	5.07	5.25	5.41	5.57	5.87	6.17	6.45	6.70
2″	5.30	5.46	5.56	5.83	5.97	6.30	6.64	6.92	7.20
2¼″	5.65	5.83	6.02	6.18	6.37	6.72	7.05	7.35	7.65
2½″	6.00	6.22	6.41	6.62	6.80	7.15	7.50	7.82	8.15
2¾″	6.38	6.57	6.77	6.97	7.14	7.55	7.92	8.25	8.57
3″	6.67	6.93	7.21	7.33	7.55	8.02	8.30	8.56	9.00
3¼″	7.03	7.25	7.47	7.69	7.98	8.21	8.70	9.05	9.41
3½″	7.37	7.61	7.84	8.15	8.25	8.68	9.06	9.45	9.82
3¾″	7.66	7.90	8.15	8.37	8.60	9.03	9.42	9.82	10.18
4″	7.98	8.24	8.47	8.71	8.93	9.37	9.78	10.19	10.55
4¼″	8.30	8.56	8.80	9.03	9.25	9.71	10.12	10.52	10.92
4½″	8.60	8.86	9.10	9.35	9.57	10.06	10.45	10.87	11.28
4¾″	8.84	9.20	9.45	9.66	9.95	10.42	10.85	11.28	11.70
5″	9.22	9.50	9.75	10.01	10.22	10.68	11.18	11.56	12.02
5¼″	9.52	9.79	10.05	10.32	10.56	11.11	11.52	11.94	12.37
5½″	9.78	10.01	10.33	10.60	10.91	11.27	11.83	12.25	12.72
5¾″	10.10	10.37	10.65	10.91	11.17	11.68	12.16	12.62	13.06
6″	10.38	10.66	10.84	11.20	11.47	12.00	12.47	12.93	13.48

Sheet Metal and Wire Gauges

Number of Wire Gauge	Thickness in Inches					Birmingham Wire Gauge Lbs. Wt. per Sq. Ft		Number of Wire Gauge
	American or Brown & Sharpe	Birmingham or Stubs' Wire	Washburn & Moen Mfg. Co. Worcester, Mass.	U. S. Standard for Plate	Stubs' Steel Wire	Iron	Steel	
0000	.46	.454	.3938	.40625	....	18.16	18.52	0000
000	.40964	.425	.3625	.375	....	17.00	17.34	000
00	.3648	.38	.3310	.34375	....	15.20	15.50	00
0	.32486	.34	.3065	.3125	....	13.60	13.87	0
1	.2893	.3	.2830	.28125	.227	12.00	12.24	1
2	.25763	.284	.2625	.265625	.219	11.36	11.59	2
3	.22942	.259	.2437	.25	.212	10.36	10.57	3
4	.20431	.238	.2253	.234375	.207	9.52	9.71	4
5	.18194	.22	.2070	.21875	.204	8.80	8.98	5
6	.16202	.203	.1920	.203125	.201	8.12	8.28	6
7	.14428	.18	.1770	.1875	.199	7.20	7.34	7
8	.12849	.165	.1620	.171875	.197	6.60	6.73	8
9	.11443	.148	.1483	.15625	.194	5.92	6.04	9
10	.10189	.134	.1350	.140625	.191	5.36	5.47	10
11	.090742	.12	.1205	.125	.188	4.80	4.90	11
12	.080808	.109	.1055	.109375	.185	4.36	4.45	12
13	.071961	.095	.0915	.09375	.182	3.80	3.88	13
14	.064084	.083	.0800	.078125	.180	3.82	3.39	14
15	.057068	.072	.0720	.0703125	.178	2.88	2.94	15
16	.05082	.065	.0625	.0625	.175	2.60	2.65	16
17	.045257	.058	.0540	.05625	.172	2.32	2.37	17
18	.040303	.049	.0475	.05	.168	1.96	2.00	18
19	.03589	.042	.0410	.04375	.164	1.68	1.71	19
20	.031961	.035	.0348	.0375	.161	1.40	1.43	20
21	.028462	.032	.03175	.034375	.157	1.28	1.31	21
22	.025347	.028	.0286	.03125	.155	1.12	1.14	22
23	.022571	.025	.0258	.028125	.153	1.00	1.02	23
24	.0201	.022	.0230	.025	.151	.88	.898	24
25	.0179	.02	.0204	.021875	.148	.80	.816	25
26	.01594	.018	.0181	.01875	.146	.72	.734	26
27	.014195	.016	.0173	.0171875	.143	.64	.653	27
28	.012641	.014	.0162	.015625	.139	.56	.571	28
29	.011257	.013	.0150	.0140625	.134	.52	.530	29
30	.010025	.012	.0140	.0125	.127	.48	.490	30
31	.008928	.01	.0132	.0109375	.120	.40	.408	31
32	.00795	.009	.0128	.01015625	.115	.36	.367	32
33	.00708	.008	.0118	.009375	.112	.32	.326	33
34	.006304	.007	.0104	.00859375	.110	.28	.285	34
35	.005614	.005	.0095	.0078125	.108	.20	.204	35
36	.005	.004	.0090	.00703125	.106	.16	.161	36
37	.004453	....	....	.006640625	.103	....	....	37
38	.003965	....	. ..	.00625	.101	. ..	. ..	38
39	.003531	....	. ..	......	.099	. ..	. ..	39
40	.003144	....	....	......	.97	....	....	40

	Iron	Steel
Weight, pounds per cu. ft.	480.	489.6
Weight, pounds per cu. in	.278	.283

Decimal Equivalents of Fractions of One Inch

1/64	.0156	17/64	.2656	33/64	.5156	49/64	.7656
1/32	.0313	9/32	.2813	17/32	.5313	25/32	.7813
3/64	.0469	19/64	.2969	35/64	.5469	51/64	.7969
1/16	**.0625**	5/16	**.3125**	9/16	**.5625**	13/16	**.8125**
5/64	.0781	21/64	.3281	37/64	.5781	53/64	.8281
3/32	.0938	11/32	.3438	19/32	.5938	27/32	.8438
7/64	.1094	23/64	.3594	39/64	.6094	55/64	.8594
1/8	**.125**	3/8	**.375**	5/8	**.625**	7/8	**.875**
9/64	.1406	25/64	.3906	41/64	.6406	57/64	.8906
5/32	.1563	13/62	.4063	21/32	.6563	29/32	.9063
11/64	.1719	27/64	.4219	43/64	.6719	59/64	.9219
3/16	**.1875**	7/16	**.4375**	11/16	**.6875**	15/16	**.9375**
13/64	.2031	29/64	.4531	45/64	.7031	61/64	.9531
7/32	.2188	15/32	.4688	23/32	.7188	31/32	.9688
15/64	.2344	31/64	.4844	47/64	.7344	63/64	.9844
1/4	**.25**	1/2	**.50**	3/4	**.75**	1	**1.**

Weight of Iron and Steel Sheets

Weight per Square Foot — Kent

Thickness by Birmingham Gauge				Thickness by American Gauge (Brown & Sharpe's)			
No. of Gauge	Thickness in Inches	Iron Lbs.	Steel Lbs.	No. of Gauge	Thickness in Inches	Iron Lbs.	Steel Lbs.
1	.3	12.00	12.24	1	.2893	11.57	11.80
2	.284	11.36	11.59	2	.2576	10.30	10.51
3	.259	10.36	10.57	3	.2294	9.18	9.36
4	.238	9.52	9.71	4	.2043	8.17	8.34
5	.22	8.80	8.98	5	.1819	7.28	7.42
6	.203	8.12	8.28	6	.1620	6.48	6.61
7	.18	7.20	7.34	7	.1443	5.77	5.89
8	.165	6.60	6.73	8	.1285	5.14	5.24
9	.148	5.92	6.04	9	.1144	4.58	4.67
10	.134	5.36	5.47	10	.1019	4.08	4.16
11	.12	4.80	4.90	11	.0907	3.63	3.70
12	.109	4.36	4.45	12	.0808	3.23	3.30
13	.095	3.80	3.88	13	.0720	2.88	2.94
14	.083	3.32	3.39	14	.0641	2.56	2.62
15	.072	2.88	2.94	15	.0571	2.28	2.33
16	.065	2.60	2.65	16	.0508	2.03	2.07
17	.058	2.32	2.37	17	.0453	1.81	1.85
18	.049	1.96	2.00	18	.0403	1.61	1.64
19	.042	1.68	1.71	19	.0359	1.44	1.46
20	.035	1.40	1.43	20	.0320	1.28	1.31
21	.032	1.28	1.31	21	.0285	1.14	1.16
22	.028	1.12	1.14	22	.0253	1.01	1.03
23	.025	1.00	1.02	23	.0226	.904	.922
24	.022	.88	.898	24	.0201	.804	.820
25	.02	.80	.816	25	.0179	.716	.730
26	.018	.72	.734	26	.0159	.636	.649
27	.016	.64	.653	27	.0142	.568	.579
28	.014	.56	.571	28	.0126	.504	.514
29	.013	.52	.530	29	.0113	.452	.461
30	.012	.48	.490	30	.0100	.400	.408
31	.01	.40	.408	31	.0089	.356	.363
32	.009	.36	.367	32	.0080	.320	326
33	.008	.32	.326	33	.0071	.284	.290
34	.007	.28	.286	34	.0063	.252	.257
35	.005	.20	.204	35	.0056	.224	.228

Weight of Copper Brass and Aluminum Sheets

Brown & Sharpe Gauge

Brown and Sharpe Gauge	Decimal Thickness Inches	Weight of Sheets, Pounds per Square Foot		
		Copper	Brass	Aluminum
1	.289	13.10	12.38	3.94
2	.258	11.67	11.03	3.52
3	.229	10.39	9.82	3.14
4	.204	9.25	8.74	2.78
5	.182	9.24	7.79	2.48
6	.162	7.34	6.93	2.21
7	.144	6.54	6.18	1.97
8	.128	5.82	5.50	1.75
9	.114	5.18	4.90	1.56
10	.102	4.62	4.36	1.39
11	.091	4.11	3.88	1.24
12	.0808	3.66	3.46	1.11
13	.0720	3.26	3.08	.985
14	.0641	2.90	2.74	.875
15	.0571	2.59	2.44	.784
16	.0508	2.30	2.18	.694
17	.0453	2.05	1.94	.620
18	.0403	1.83	1.72	.552
19	.0359	1.63	1.54	.492
20	.0320	1.45	1.37	.437
21	.0285	1.29	1.22	.390
22	.0253	1.15	1.08	.347
23	.0226	1.02	.966	.308
24	.0201	.911	.860	.276
25	.0179	.811	.766	.245
26	.0159	.722	.682	.218
27	.0142	.643	.608	.194
28	.0126	.573	.541	.173
29	.0113	.510	.482	.154
30	.0100	.454	.429	.137
31	.0089	.404	.382	.122
32	.0080	.360	.340	.109
33	.0071	.321	.303	.097
34	.0063	.286	.270	.087
35	.0056	.254	.240	.077
36	.0050	.226	.214	.068
37	.0045	.202	.191	.061
38	.0040	.180	.170	.054
39	.0035	.160	.151	.048
40	.0031	.142	.135	.043

	Copper	Brass	Aluminum
Weight of 1 cubic foot in pounds.........	543.6	513.6	164.2
Weight of 1 cubic inch in pounds.........	.315	.297	.095

Circumferences and Areas of Circles

Diameter	Circumference	Area	Diameter	Circumference	Area
⅛	.3927	.01227	¼	29.060	67.201
¼	.7854	.04909	½	29.845	70.882
⅜	1.1781	.11045	¾	30.631	74.662
½	1.5708	.19635	**10**	**31.416**	**78.540**
⅝	1.9635	.30680	¼	32.201	82.516
¾	2.3562	.44179	½	32.987	86.590
⅞	2.7489	.60132	¾	33.772	90.763
1	**3.1416**	**.7854**	**11**	**34.558**	**95.033**
⅛	3.5343	.9940	¼	35.343	99.402
¼	3.9270	1.2272	½	36.128	103.87
⅜	4.3197	1.4849	¾	36.914	108.43
½	4.7124	1.7671	**12**	**37.699**	**113.10**
⅝	5.1051	2.0739	½	39.270	122.72
¾	5.4978	2.4053	**13**	**40.841**	**132.73**
⅞	5.8905	2.7612	½	42.412	143.14
2	**6.2832**	**3.1416**	**14**	**43.982**	**153.94**
⅛	6.6759	3.5466	½	45.553	165.13
¼	7.0686	3.9761	**15**	**47.124**	**176.71**
⅜	7.4613	4.4301	½	48.695	188.69
½	7.8540	4.9087	**16**	**50.265**	**201.06**
⅝	8.2467	5.4119	½	51.836	213.82
¾	8.6394	5.9396	**17**	**53.407**	**226.98**
⅞	9.0321	6.4918	½	54.978	240.53
3	**9.4248**	**7.0686**	**18**	**56.549**	**254.47**
⅛	9.8175	7.6699	½	58.119	268.80
¼	10.210	8.2958	**19**	**59.690**	**283.53**
⅜	10.603	8.9462	½	61.261	298.65
½	10.996	9.6211	**20**	**62.832**	**314.16**
⅝	11.388	10.321	½	64.403	330.06
¾	11.781	11.045	**21**	**65.973**	**346.36**
⅞	12.174	11.793	½	67.544	363.05
4	**12.566**	**12.566**	**22**	**69.115**	**380.13**
⅛	12.959	13.364	½	70.686	397.61
¼	13.352	14.186	**23**	**72.257**	**415.48**
⅜	13.744	15.033	½	73.827	433.74
½	14.137	15.904	24	75.398	452.39
⅝	14.530	16.800	25	78.540	490.87
¾	14.923	17.721	26	81.681	530.93
⅞	15.315	18.665	27	84.823	572.56
5	**15.708**	**19.635**	28	87.965	615.75
⅛	16.101	20.629	29	91.106	660.52
¼	16.493	21.648	30	94.248	706.86
⅜	16.886	22.691	31	97.389	754.77
½	17.279	23.758	32	100.531	804.25
⅝	17.671	24.850	33	103.673	855.30
¾	18.064	25.967	34	106.814	907.92
⅞	18.457	27.109	35	109.956	962.11
6	**18.850**	**28.274**	36	113.097	1017.9
¼	19.635	30.680	37	116.239	1075.2
½	20.420	33.183	38	119.381	1134.1
¾	21.206	35.785	39	122.522	1194.6
7	**21.991**	**38.485**	40	125.664	1256.6
¼	22.776	41.282	41	128.805	1320.3
½	23.562	44.179	42	131.947	1385.4
¾	24.347	47.173	43	135.088	1452.2
8	**25.133**	**50.265**	44	138.230	1520.5
¼	25.918	53.456	45	141.372	1590.4
½	26.704	56.745	46	144.513	1661.9
¾	27.489	60.132	47	147.655	1734.9
9	**28.274**	**63.617**	48	150.796	1809.6

Horsepower of Shafts for Given Diameter and Speed

Formula for the horsepower which properly designed and erected iron and steel line shafts will transmit at various revolutions. Multiply the cube of the diameter of the shaft by the revolutions per minute, and divide by the constant eighty; the quotient equal the horsepower transmitted.

EXAMPLE—What horsepower will a 3-inch shaft transmit at 100 revolutions per minute? The cube of 3 is 27x100=2,700+80=33.75.

The following table gives the horsepower which shafting of various diameters will transmit at different speeds.

Diameter of Shaft in Inches	Revolutions per Minute									
	100	125	150	175	200	225	250	300	350	400
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
15/16	1.2	1.4	1.7	2.1	2.4	2.6	3.1	3.6	4.3	5.0
1 3/16	2.4	3.1	3.7	4.3	4.9	5.5	6.1	7.3	8.5	9.7
1 7/16	4.3	5.3	6.4	7.4	8.5	9.5	10.5	12.7	14.8	16.9
1 11/16	6.7	8.4	10.1	11.7	13.4	15.1	16.7	20.1	23.4	26.8
1 15/16	10.0	12.5	15.0	17.5	20.0	22.5	25.0	30.0	35.0	40.0
2 3/16	14.3	17.8	21.4	24.9	28.5	32.1	35.6	42.7	49.8	57.0
2 7/16	19.5	24.4	29.3	34.1	39.0	44.1	48.7	58.5	68.2	78.0
2 11/16	26.0	32.5	39.0	43.5	52.0	58.5	65.0	78.0	87.0	104.0
2 15/16	33.8	42.2	50.6	59.1	67.5	75.9	84.4	101.3	118.2	135.0
3 3/16	43.0	53.6	64.4	75.1	85.8	96.6	107.3	128.7	150.3	171.6
3 7/16	53.6	67.0	79.4	93.8	107.2	120.1	134.0	158.8	187.6	214.4
3 11/16	65.9	82.4	97.9	115.4	121.8	148.3	164.8	195.7	230.7	243.6
3 15/16	80.0	100.0	120.0	140.0	160.0	180.0	200.0	240.0	280.0	320.0
4 7/16	113.9	142.4	170.8	199.3	227.8	256.2	284.7	341.7	398.6	455.6
4 15/16	156.3	195.3	234.4	273.4	312.5	351.5	390.6	468.7	546.8	625.0

For headshafts, or those subjected to extra or unusual strains, divide by 100 instead of 80.

Approximate Horsepower Transmitted by Belts

Double Leather Belts

Speed in Feet per Minute	Width of Belt in Inches										
	4	6	8	10	12	14	16	18	20	22	24
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P	H.P.	H.P.	H.P.	H.P.	H.P.
400	2¾	4½	5¾	7¼	8½	10	11½	14	14½	16	17½
600	4¼	6½	8¾	11	13	15	17½	19½	22	24	26
800	5¾	8½	11½	14½	17½	20½	23	26	29	32	34½
1000	7¼	11	14½	18¼	21½	25½	29	32½	36	40	41½
1200	8½	13	17½	22	26	30½	34½	39	44	48	52½
1500	10¾	16¼	21¾	27¼	32½	38	43½	49	54½	60	65½
1800	13	19½	26	32¾	39	45½	52	59	65½	72	78½
2000	14½	21¾	29	36¼	43½	50½	58	65½	72½	80	87
2400	17½	26	34¾	44	52½	60½	69½	78½	88	96	105
2800	20¼	30½	40½	51	61	71	81	91½	102	112	122
3000	21½	32½	43½	54½	65½	76	87½	98	108	120	131
3500	25½	38	50¾	63½	76	89	101	114	127	140	153
4000	29	43½	58¼	72¾	87	101	116	131	145	160	174
4500	32½	49	65	82	98	114	131	147	163	180	196
5000	36½	54½	72¾	91	109	127	147	163	182	200	218

Tin Plate Data

Net Weight per Box Tin Plates

Trade Term.		80-lb.	85-lb.	90-lb.	95-lb.	100-lb.	IC	IXL	IX	IXX	IXXX	IXXXX
Weight per Box, Lbs.		80	85	90	95	100	107	128	135	155	175	195
Nearest U. S. Gauge		33	32	31	31	30½	30	28	28	26½	25½	25
Size of Sheets	Sheets per Box											
10 x14	225	80	85	90	95	100	107	128	135	155	175	195
14 x20	112	80	85	90	95	100	107	128	135	155	175	195
20 x28	112	160	170	180	190	200	214	256	270	310	350	390
10 x20	225	114	121	129	136	143	153	183	193	221	250	279
11 x22	225	138	147	156	164	172	184	222	234	268	302	337
11½x23	225	151	161	170	179	189	202	242	255	293	331	368
12 x12	225	82	87	93	98	103	110	132	139	159	180	201
12 x24	112	82	87	93	98	103	110	132	139	159	180	201
13 x13	225	97	103	109	115	121	129	154	163	187	211	235
13 x26	112	97	103	109	115	121	129	154	163	187	211	235
14 x14	225	112	119	126	133	140	150	179	189	217	245	273
14 x28	112	112	119	126	133	140	150	179	189	217	245	273
15 x15	225	129	137	145	153	161	172	206	217	249	281	313
16 x16	225	146	155	165	174	183	196	234	247	283	320	357
17 x17	225	165	175	186	196	206	221	264	279	320	361	403
18 x18	112	93	98	104	110	116	124	148	156	179	202	226
19 x19	112	103	110	116	122	129	138	165	174	200	226	251
20 x20	112	114	121	129	136	143	153	183	193	221	250	279
21 x21	112	125	134	142	150	158	169	202	213	244	276	307
22 x22	112	138	147	156	164	172	184	221	234	268	302	337
23 x23	112	151	161	170	179	189	202	242	255	293	331	368
24 x24	112	164	175	185	195	204	220	263	278	319	360	401
26 x26	112	193	205	217	229	241	258	309	326	374	422	471
16 x20	112	91	97	103	109	114	122	146	154	177	200	223
14 x31	112	124	132	140	147	155	166	198	209	240	271	302
11¼x22¾	112	73	78	82	87	91	98	...	...	...	...	...
13¼x17¾	112	67	71	76	80	84	90	...	...	...	...	...
13¼x19¾	112	73	77	82	87	91	97	...	...	...	...	...
13½x19½	112	75	80	85	89	94	100	...	...	...	...	...
13½x19¾	112	76	81	86	90	95	102	...	...	...	...	...
14 x18¾	124	83	88	93	98	103	110	...	...	...	...	...
14 x19¼	120	83	88	93	98	103	110	...	...	...	...	...
14 x21	112	84	89	95	100	105	112	...	...	...	...	...
14 x22	112	88	94	99	105	110	118	...	...	...	...	...
14 x22¼	112	89	95	100	106	111	119	...	...	...	...	...
15½x23	112	102	108	115	121	127	136	...	...	...	...	...

INDEX

A

Page

Adjustable bed presses 63-73, 103-115
Adjustable body formers 414-417
Adjustments for slide 14
Alligator shears 395-396-397
Arch presses (power) 146-154
Arch presses (screw) 436-438, 448-449
Automatic block clutch 10-12
Automatic cam stripper 261, 307
Automatic can top and bottom presses 239, 247
Automatic clutch safety device 15
Automatic dial feeds 16-38-99
Automatic die slide 36
Automatic disc cutting machines 383-388
Automatic disc cutting presses 251, 252, 259
Automatic disc notching machines 128-132
Automatic edging machines 398-400
Automatic elbow machine 401
Automatic friction clutch 10, 13, 176, 268, 322
Automatic Johnson clutch 10, 12, 359, 361-367
Automatic knockout in bed 30, 35, 165, 169, 172, 251, 319, 334, 340
Automatic knockout in slide 14, 32, 44, 147, 165, 248, 251, 273
Automatic pin clutch 10-11
Automatic rocker arm clutch 10-11
Automatic roll feed 16, 37, 40, 61, 99-102, 153, 178, 288, 295, 303
Automatic slide feed 62
Automatic trimming machines 407-409
Automatic wire ring machines 402-403
Automobile body presses 272-280
Axe poll forging presses 200, 202

B

Band rolling machines 421-423
Band welding machines 117, 119
Bath tub hammer 332
Bath tub presses 291
Beading machines 405-413
Bench crimper and seamer 350
Bench drop hammer 227

Page

Block clutch 12, 58, 95, 161, 242
Body formers 414-417
Boilermakers' punches 126-127
Bolsters for wiring 70, 107, 246, 254
Brass founders' sprue cutters 133, 134, 137
Broaching presses 73, 112, 159, 172
Burial vault cover press 274
Burnishing and bulging attachments for lathes 346, 347

C

Cam-actuated die slide 36
Cam-actuated knockout in bed 30, 165, 169, 251
Cam-actuated stripper 261-307
Cam drawing presses 333-342
Cam press 342
Can and cylinder riveting presses 120-122
Can body former, square 430
Can top presses 29, 239, 247
Chamfering machine 451-452
Circular shears 382-388
Clutches 10-13
Coining presses 181-184
Combination blanking and forming dies 458
Compound rest for lathes 346-347
Corrugating rolls 416, 418-420
Crimpers 348-358
Curling attachment for lathes 345
Cylinder forming rolls 414-417
Cylinder perforating press 120

D

Deep gap presses 77-79, 108, 109, 111, 113, 136-145, 283-300
Departments 4, 5, 456-457
Detachable bed presses 63-73, 103-115
Dial feeds 16-38-99
Dies 456-473
Die testing presses 436-440
Dimension sheets ....see list, pages 488-489
Direct-connected motor-drive ...31, 51, 58, 90, 97, 130, 194, 196, 252, 259, 364
Disc cutting machines 383-388
Disc cutting presses 251, 252, 259
Disc notching machines 128-132
Double action cam presses 333-342
Double action dies 460
Double action toggle presses 312-332
Double crank presses 237-311
Double punching and shearing machines 141-145
Double roll feeds 16, 37, 40, 99, 153, 178, 288

Page
Double seamers 348-358
Drawing presses 312-341
Drilling lathes 451, 453
Drop forging hammers 205-219
Drop hammers, board lift 205-225
Drop hammers, rope lift 226-236
Duplex seaming horn 63, 69
Duplex straight sided press 192-202

E

Eccentric slide adjustment 78-125
Edging machine 398-400
Elbow machine 401
Embossed stove parts 470, 472, 473
Embossing presses 181-184
Expanding machines 454-455

F

Feeds (See also "Roll" and "Dial" Feeds) 16
Finishing rolls 424
Flanging machines 405-413
Flanging presses 162-176, 257-277
Foot presses 430-435
Foot gang perforating press 435
Forging hammers 205-219
Foundations for hammers 207-208
Forging presses 50-60, 91-96, 185-204
Forming rolls 414-417
Friction clutches 10-13-176-276-319-332
Friction lift hammers 205-225

G

Gang dies 37, 61, 101, 102, 239, 247, 258, 284, 293, 295, 459
Gang perforating press 435
Gang punching presses 100-102, 282-311
Gang slitting machines 389-394
Gap double crank presses 282-311
Gap drawing presses 333-337
Gap horizontal bending and forming machine 441, 444
Gap horning and punching presses, removable bed 103-115
Gap horning and wiring presses, removable bed 63-73
Gap inclinable presses 17-40
Gap puching and shearing machines 126-127, 135-145
Gap punching presses, fixed bed 41-62, 77-102, 282-311
Gap riveting hammer 228
Gap screw presses 439-440

Page

Gap shears 359, 371-380
Gap single crank presses 17-62, 80-102
Gap slitters 382-388
Gauges and tables 474-480
Gravity feed 239-247
Greeting 6-7
Grinders 445-447
Grooving machine 429

H

Hammers, bench 227
Hammers, board lift drop 205-225
Hammers, board lift forging drop 205-219
Hammer, gap drop 228
Hammers, rope lift 226-236
Hammer, steam 332
Handle bending machine 450
High pattern tire welding press 117
High pattern wiring press 242
Holders for punches and shears 135
Horizontal bending and forming machines 441-444
Horizontal reducing press 177
Horning and wiring presses 63-73, 103-115
Horning and wiring presses, arch pattern 146-152
Horning and punching presses 103-115

I

Inclinable open back presses 17-40
Inclined presses 46-151-154-179-239-247
Inclined shaft slitters 387-388
Indexing machines 128-132
Introduction 6-7
Inverted cam press 342
Inquiries and notes of importance 8

J

Jewler's foot presses 431-435
Jeweler's screw presses 436-440

K

Knuckle joint presses 181-184

L

Lathes, spinning 343-347
Lever foot presses 430-435
Long stroke double crank presses 242-269, 272-280
Long stroke drawing presses 312-341
Long stroke punching and horning presses 85, 89, 106
Long stroke single crank reducing presses 158, 159, 165, 170, 172-177
Long stroke wiring presses 74-76

M

Page

Medal coining presses 181-184
Medal embossing hammers 220, 221, 227, 229-231
Medal embossing screw press 436, 438
Metal lath expanding machines 454-455
Motor driven presses 31, 51, 58, 90, 97, 130, 194, 196, 252, 259, 307
Motor driven shears 364, 368, 384
Multiple or gang slitters 389-394
Multiple punching presses 61, 100-102, 282-311
Multiple slide press 435

N

Necking and bulging lathes 343-347
Notching machines 128-132

O

Oil barrel swaging machine 413
Open back cam drawing presses 333-337
Open back inclinable presses 17-40
Open back presses 17-40, 41-62, 146-176
Oval seamers 356-357

P

Pendulum foot presses 431-435
Pieced tinware samples 462
Positive stop for clutches 15
Presses, adjustable bed, horning and wiring 63-73
Presses, adjustable bed, punching and horning 103-115
Presses, arch 146-154
Presses, armature and disc notching 128-132
Presses, cam 333-342
Presses, coining 181-184
Presses, deep gap, stovemakers' 77-79
Presses, foot power 430-435
Presses, forging 50-60, 91-96, 185-204
Presses, gap double crank 283-311
Presses, gap single crank 41-62
Presses, horizontal 441-444
Presses, inclinable, open back 17-40
Presses, open back 41-62
Presses, punching 80-102
Presses, riveting 103-125
Presses, screw, hand power 436-440
Presses, straight sided, double crank 198-204, 237-283
Presses, straight sided, single crank 155-180
Presses, toggle drawing 312-332
Presses, wiring 70, 72, 74-76, 107, 152, 242, 246, 253, 254
Presses, punching and riveting, boilermakers' 126-127

R

Page

Reducing presses 155-176
Reducing presses, cam drawing 333-341
Reducing presses, toggle drawing 312-332
Removable bed presses 63-73, 103-115
Removable front presses 49, 152, 240, 246, 253, 254, 291
Rim perforating and embossing presses 72-73, 104, 110, 112
Ring forming machines, wire 402-403
Riveting presses 63-73, 103-127
Riveting presses for boilermakers 126-127
Roll feeds 16, 37, 40, 61, 98, 99, 100-102, 153, 178, 288, 295, 303
Rolling mills 425
Rolls, corrugating 418-420
Rolls for bands or tires 421-423
Rolls, forming 414-417
Rolls for shovel straps 426-427
Rolls, smoothing 424
Rope lift hammers 226-236
Rotary circle and slitting shears 382-388

S

Safety attachment for clutches 15
Samples of dies 457-461
Samples of press work 462-473
Screw adjustment for slide 14
Screw presses, hand 436-440
Screw press, power 448-449
Seamers 348-358
Segment notching presses 128-132
Shears, alligator 395-397
Shears, circle 382-388
Shears, gap 371-381
Shears, slitting 382-394
Shears, squaring 359-381
Shovel strap rolls 426-427
Sliding bolsters 70, 107, 246, 254
Slitters, gang 389-394
Slitters, rotary 382-386
Slitters, single 382-386
Smoothing rolls 424
Spinning lathes 343-347
Sprue cutters 133, 134, 137
Squeezing machines 428
Straight sided double crank presses 237-280, 323, 339
Straight sided single crank presses 155-180
Strapping machine 445
Strippers, cam actuated 261-307
Sunken bolster 152, 253
Swaging machines 410-413

T

Page

Tables of gauges, etc. 474-480
Tie rods 30, 55, 95, 127, 172-176, 280, 330
Tire welding press 117
Toggle drawing hammer 332
Toggle drawing presses 312-332
Toggle foot presses 431-432
Trimmers, automatic 407-409
Trimming, beading and flanging machines 405-412
Trimming lathes 343-347
Trimming presses (See forging presses) ....
Trimming shears 359-381

W

Watercooled lift for hammers 235-236
Wire ring machines 402-403
Wiring bolsters 70, 107, 246, 254
Wiring dies 458
Wiring presses 70, 72, 74, 76, 107, 152, 242, 246, 253, 254
Wiring presses (See also long stroke presses) ....

Dimension Sheets--Index

Page
Standard Feeds 16
Open Back Inclinable Presses Nos. ½ to 3½ 18
Open Back Inclinable Presses Nos. 4 to 6½ 19
Open Back Presses Nos. 74 to 76-A 42
Open Back Presses Nos. 77 to 79¾ 43
Horning and Wiring Presses Nos. 12 to 14½ 64
Long Stroke Wiring Presses Nos. 114 to 116 74
Deep Gap Punching Presses Nos. 15 to 19 77
Punching Presses Nos. 30 to 33-S 81
Punching Presses Nos. 34 to 36 82
Punching and Horning Presses Nos. 41 to 45 103
Boilermakers' Punching and Riveting Presses Nos. 121 to 121-A 126
Armature Disc Notching Presses Nos. 12, 131 to 135 128-132
Sprue Cutters Nos. 141 to 145 133
Single Punching and Shearing Machines Nos. 31-A to 39¼-F 136
Double Punching and Shearing Machines Nos. D31-A to D39¼-F 141
Arch Presses Nos. 50 to 52 146
Straight Sided Single Crank Presses Nos. 53 to 57-S 156
Straight Sided Single Crank Trimming Presses Nos. 54 to 59 188
Straight Sided Single Crank Presses Nos. 58 to 61 157
Toggle Joint Coining Presses Nos 660 to 666 182
Straight Sided Double Crank Presses Nos. 93-B to 96-B & 194 Duplex .198
Straight Sided Double Crank Presses Nos. 90-A to 91-D 238
Straight Sided Double Crank Presses Nos. 92-A to 92½-F 245
Straight Sided Double Crank Presses Nos. 93-A to 93-F 249
Straight Sided Double Crank Presses Nos. 94-A to 94-I 256
Straight Sided Double Crank Presses Nos. 95-A to 95-E 263
Straight Sided Double Crank Presses Nos. 96-A to 96-H and 96½-Sp .. 270
Straight Sided Double Crank Presses Nos. 97-A to 97-G 276
Straight Sided Double Crank Presses Nos. 98-A to 98½-E 279
Straight Sided Double Crank Presses Nos. 99-A to 99½-D 281
Straight Sided Double Crank Presses Nos. 99¾-A to 99¾-D 282
Double Crank Gap Presses Nos. 202-A to 202-C., Sp 283
Double Crank Gap Presses Nos. 203-A to 203-E 287
Double Crank Gap Presses Nos. 204-A to 204-E 290
Double Crank Gap Presses Nos. 205-A to 205-G 296
Double Crank Gap Presses Nos. 206-A to 206-F 301
Double Crank Gap Presses Nos. 207-A to 208-G 305
Double Crank Gap Presses Nos. 210-A to 212-C 310
Toggle Drawing Presses Nos. 161 to 166 315
Toggle Drawing Presses Nos. 167 to 169¾ 326
Cam Drawing Presses Nos. 23 to 29¾ 333
Cam Drawing Presses Nos. 63 to 69¾ 338
Double Action Cam Press Nos. 112 and 112½ 342
Spinning Lathes Nos. 323 to 328 343

Page
Bench Double Seamer and Crimper No. 300 350
Double Seaming Machines Nos. 301 to 308 348-349
Edging Machines Nos. 311 to 313-A 398
Automatic Wire Ring Machines Nos. 292 and 293 402
Trimming, Beading and Flanging Machines Nos. 330 to 339 405-407
Automatic Trimming Machine No. 330-A. 407
Automatic Trimming Machine Nos. 335-A, 338-A. 409
2-Roll Body Formers Nos. 340 to 342 414
3-Roll Body Formers Nos. 343 to 348 415
Can Body Formers Nos. 255 to 256 430
Power Squeezers Nos. 551 and 552 428
Grooving Machines No. 553 429
Foot Presses Nos. 241 to 244 and 251 to 254 431
Foot Gang Perforating Press No. 249 435
Foot Press, Horning and Riveting, No. 253 434
Hand Screw Presses Nos. 150 to 159 436
Forging Drop Hammers, 100 to 1200-pound 209
Forging Drop Hammers, 1500 to 3500-pound 216
Board Lift Hammers, 100 to 1200-pound 220
Board Lift Hammers, 1500 to 5000-pound 223
Rope Lift Drop Hammers Nos. 260 to 265 226
Rope Lift Drop Hammers Nos. 265½ to 269 233
Bench Drop Press Nos. 10-A to 12-A 227
Gap Riveting Hammer No. 260 228
Squaring Shears Nos. 418-A to 400½-F 360
Gap Shears Nos. 516-A to 500½-E 371
Single Slitting Machines Nos. 380 to 389 282
Single Slitting Machines with Angular Shaft Nos. 380-A to 388-A 387
Gang Slitting Machines Nos. 502 to 545 389
Alligator Shears Nos. 390 to 394 395
Bail Forming Machine Nos. 682 and 683 404
Horizontal Bending and Forming Machines Nos. 671 to 677 441
Grinding Machines Nos. 542 to 544 445
Grinding Machines Nos. 545 to 547 445
Strapping Machines No. 548 445
Power Screw Press No. 125 448
Handle Bending Machine No. 554 448
Shovel Strap Finishing Rolls Nos. 558 to 559 448
Chamfering Machines No. 555 451
Single Head Drilling Lathe No. 557 451
Double Head Drilling Lathe No. 556 451
Gap Rolling Mills Nos. 363 to 366 425
Band Rolling Machines Nos. 351 to 355 421
Smoothing Rolls Nos. 360 to 362 424
Corrugating Rolls Nos. 371 to 374 418
Metal Expanding Machines Nos. 700 and 701 454

LIBRARY
NOV 2 - 1993
UNIVERSITY OF TORONTO

5794